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# **DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS– SOCIAL AND GENDER DIFFERENCES**

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# Depression among adolescents and young adults – social and gender differences

## THESIS FOR DOCTORAL DEGREE (Ph.D.)

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## ABSTRACT

Depression is a large public health problem that has a negative impact on many aspects of life. Among adolescents and young adults it is the leading cause of disability-adjusted life years. Many different factors can be expected to play a role in its development, such as biology, physical disease, gender, and psychosocial and socioeconomic factors. Depression is more common among women than among men; however, it constitutes a large public health problem also for men though less attention has been given to them. Much previous research shows that there are social differences in poor mental health. The field is however hampered by the use of different definitions and measurements such as the omnibus measure of “psychological distress”, as well as little focus on specific mental disorders, young age and gender, especially in welfare states typical of the Nordic countries. The overall aim with this thesis was thus to expand upon previous research and enhance the knowledge about social and gender differences in depression among young people in Sweden.

Three different materials were used to capture a broad picture of the role of social position, gender and depression, in adolescence (13-17 year olds) and in young adulthood (18-32 year olds). 1) Longitudinal survey data from the BROMS cohort was used to assess the risk of self-reported depressive symptoms by different social factors (study I). 2) Register data from the Stockholm Youth Cohort was used to assess the risk of diagnosed depression in different social groups by using a large study population and a cohort design (study II). The register data was further used to investigate social differences in psychosocial functioning and psychiatric comorbidity among adolescents with depression (study III). 3) Data from qualitative interviews was used to explore how young men experience depression and help-seeking in relation to their conception of masculinity (study IV).

The results from this thesis show that low social position in childhood increases the risk of depression in adolescence, and of a more burdensome depression (worse psychosocial functioning and/or psychiatric comorbidity) amongst adolescents with depression. The social differences were more evident in self-reported depressive symptoms compared to diagnosed depression, and in a more burdensome depression (among adolescents with depression) compared to depression only. Among adolescents with foreign-born parents there was a lower risk of diagnosed depression but no differences were found in self-reported depressive symptoms as compared to having Swedish born parents. Girls had an increased risk of both self-reported depressive symptoms and diagnosed depression compared to boys. Gender differences in relation to social position in diagnosed depression were small. However, girls with parents with low education were found to be particularly vulnerable to both self-reported and diagnosed depression as well as worse psychosocial functioning among those with depression. Both boys and girls with depression with lower familial social position faced an increased risk of psychiatric comorbidity but with differences in type of comorbidity between genders. The young adult men's acceptance and help-seeking for depression was found to be delayed because of the perceived gender ideals.

We thus highlight the importance of gender awareness among professionals as well as among those affected by depression. Continued efforts are needed to reduce social and gender differences in depression, particularly considering the fact that a great number of people are affected. Explanations to these social differences, and to social differences in care-seeking related to depression, need further attention.

## LIST OF SCIENTIFIC PAPERS

The thesis is based on the following publications. In the text, they will be referred to by their Roman numerals.

- I. Wirback, T., Möller, J., Larsson, J-O., Galanti, MR., & Engström, K. Social factors in childhood and risk of depressive symptoms among adolescents – a longitudinal study in Stockholm, Sweden. *International Journal for Equity in Health* 2014, 13:96
- II. Wirback, T., Möller, J., Larsson, J-O., & Engström, K. Social differences and diagnosed depression among adolescents in a Swedish population based cohort. *BMC Psychiatry* 2018, 18:216
- III. Wirback, T., Möller, J., Larsson, J-O., Engström, K. Social differences in psychiatric comorbidity and psychosocial functioning among adolescents with depression. *Manuscript*
- IV. Wirback, T., Forsell, Y., Larsson, J-O., Engström, K., & Edhborg, M. Experiences of Depression and Help-Seeking Described by Young Swedish Men. *Psychology of Men & Masculinity* 2018, 19(3), 407-417

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## LIST OF ABBREVIATIONS

|       |  |
|-------|--|
| ADHD  | Attention Deficit Hyperactivity Disorder                                   |
| BDI   | Beck Depression Inventory  |
| BROMS | Swedish acronym for Children's Smoking And Environment in Stockholm County |
| CAMHS | The public Child and Adolescent Mental Health Services (in Swedish, BUP)   |
| CD    | Conduct Disorder   |
| CES-D | Center for Epidemiologic Studies Depression Scale                          |
| CI    | Confidence Interval  |
| CGAS  | Children's Global Assessment Scale   |
| DSM   | Diagnostic and Statistical Manual of Mental Disorders                      |
| ECT   | Electroconvulsive treatment  |
| HR    | Hazard Ratio   |
| ICD   | International Classification of Diseases                                   |
| ISCED | International Standard Classification of Education                         |
| MADRS | Montgomery-Åsberg Depression Rating Scale                                  |
| ODD   | Oppositional Defiant Disorder  |
| OR    | Odds Ratio   |
| RCT   | Randomized Controlled Trial  |
| SYC   | Stockholm Youth Cohort   |
| SEP   | Socioeconomic Position   |
| SLL   | Swedish acronym for Stockholm County Council                               |
| SUN   | Swedish education nomenclature   |
| VAL   | Swedish acronym for health care registers in SLL                           |

# 1 INTRODUCTION

Poor mental health is the largest public health problem in high-income countries [1] and the second largest contributor to years lived with disabilities (DLL) in the world [2]. Depression forms a major part of this public health problem with a life time prevalence of about 17-18 percent in the western world [3]. It is the third leading burden of disease worldwide and the first in middle-and high-income countries [4]. Among 10-24 year-olds it is the leading cause for disability-adjusted life years in the world [5]. Young people affected by poor mental health, such as depression and anxiety, have an increased risk of other kinds of poor mental health [6], as well as substance dependence, suicide and unemployment [3, 6, 7]. Depression is also a risk factor for cardiovascular diseases [8] and obesity [9]. Depression is furthermore a costly disease for society, but more important, it brings with it negative consequences for those affected by it, both for patients and relatives.

Depression is more common among woman and girls than among men and boys [3, 10, 11] but still comprises a common problem for men [12]. Self-reported depressive symptoms have increased among adolescents in Sweden during the last two decades [1], both for boys and girls [13] as have the prevalence of adolescents treated for depression [14]. It is however suggested that a large number of depressions are undetected [15], and that adolescents [16] and men [17] seek care to an even lower extent compared to adults and women. Many factors play a role in seeking care for mental health problems, such as symptoms of the disease [18] and impairment from it [19] but also feelings of shame [20]. It can also challenge men's masculine identities [21].

Many different factors can be expected to play a role in the development of depression and determinants of depression are likely to be unequally distributed between social groups. The social and economic conditions during upbringing are expected to contribute to different life opportunities [22]. Several studies have found that adolescents with low social position have higher risks of poor mental health [e.g. 23, 24-40], though the opposite has also been found [40]. It has also been noted that socioeconomic inequality has increased in poor mental health among adolescents [41, 42]. Comprehension of the field is hampered by heterogeneity of the indicators used to define social position, illness severity and definitions of depression (including clinical depression and self-reported) as well as by differential adjustment for confounding factors. Not much is known concerning social differences in the risk of depression among adolescents in welfare states typical of the Nordic countries. Neither is much known about social differences among adolescents with depression nor about young men's experiences of the disease and help-seeking, and the influence of gender in these areas.

This thesis is based on data from surveys, registers and interviews. It includes different indicators of social position and different measures of depression as well as interview material, to capture a broad picture. To find out about social and gender differences in depression and what impact these aspects can have on people makes it easier to work

efficiently with interventions to reduce problems of inequality. Preventing poor mental health among young people is important to even out life chances and to promote social mobility. This thesis about social position, gender and depression in young age in Sweden importantly contributes to expanding the limited knowledge on social differences in depression in this age group. It also increases the knowledge on whether boys and girls are equally affected.

## **2 BACKGROUND**

The background of this thesis starts with a description of poor mental health, depression and its symptoms, prevalence and treatment, followed by an overview of factors that can contribute to the development of depression. The emphasis is then put on two of these factors; social position and gender. The section ends with a description of the Swedish setting.

### **2.1 DEPRESSION**

Poor mental health is an umbrella term and generally includes self-reported symptoms of anxiousness or distress as well as mental disorders such as anxiety and depression. Mild mental health problems do not necessarily indicate disease and treatment, but can of course still affect well-being and everyday life [43]. A mental disorder represents symptoms of poor mental health that fulfill certain diagnostic criteria [44].

#### **2.1.1 Diagnosis and symptoms**

The diagnosis of depression was first introduced in DSM in 1980. It is a mood/affective disorder characterized by low mood, loss of energy and interest or pleasure [3], and common symptoms are loss of self-esteem, feelings of guilt, and thoughts about death, impaired concentration and sleep and appetite disturbances [3]. Depression tends to be a recurrent and relapsing disorder, but those experiencing milder symptoms have a better prognosis [45]. For a diagnosis of clinical depression, according to the commonly used DSM-IV criteria, five out of nine specified symptoms as well as an effect on professional or personal life are required. Some argue the cut point is arbitrary and lack evidence [46], and the line between what is normal and pathological might indeed be hard to draw [3]. It can further be known as a “disjunctive” diagnosis because two people with depression may have very few symptoms in common [47]. Children and youth may express symptoms a bit differently from adults [48]. As an example, irritability can, among children and adolescents, be considered a symptom instead of low mood, but symptoms generally tend to be similar in all ages [45]. Self-reported depressive symptoms are measured with a variety of different questionnaires, for example the Beck Depression Inventory (BDI) [49] and Center for Epidemiologic Studies Depression Scale (CES-D) [50].

Many adolescents that experience depressive symptoms are at higher risk for clinical/diagnosed depression later on [51]. Furthermore, depression in adolescence is a risk factor for depression later in life [52] and has been shown to predict the risk of other kinds of poor mental health [6].

### **2.1.2 Prevalence**

There is considerable variation in depression prevalence between and within different countries in Europe [53] but it is a disease that affects many and people of all ages [3]. In Sweden the life time incidence of depression is about 36 percent for women and 23 percent for men [54]. Approximately two percent of adolescent boys and 7 per cent of the girls fulfil criteria for clinical depression during a year [55]. Depression has been found to be more common in adolescence than in childhood [3, 10, 11] with a median age of onset of 13 [56]. Prevalence rises with age for both sexes [14], most evidently during puberty [10]. Adolescents can recover spontaneously [57], however recurrence is common [58]. Girls have been found to be at a higher risk of depressive symptoms than boys [3, 10, 11, 32]. The prevalence peaks in young adulthood (25-34 years) possibly because this is the period where the dysfunctions become particularly apparent for many [47]. A feeling of mastering your life can become more prevalent in your 40s and 50s when depression rates also decline.

The National Board of Health and Welfare report that there has been a tripled increase of young people aged between 15 and 19 treated for depression in Sweden between 1998 and 2012 even though it is hard to determine the overall trend [59]. One of the reasons for an increase in poor mental health has been suggested to be related to a reduced stigma [60]. However it seems unlikely to be the only explanation and it has been concluded that there is a real increase of depressed mood, from the mid 1980 to mid-2000 [61, 62]. The increase is also evident in other countries [63].

### **2.1.3 Treatment**

There are several available treatments for depression. Much of the pharmacological treatments have been developed based on the knowledge that the cause of depression is a lack of signal substances such as serotonin but there are also different therapy treatments which focus on the impact of the mind. Electroconvulsive treatment (ECT) is another available treatment most effective on severely ill patients [3]. Another effective treatment is physical activity [64]. Often patients receive a combination of treatments [3]. Most research on treatment is conducted on adults and less is known about effects on children and adolescents. However on short term basis the medication with fluoxetine has gained some evidence to be successful, as well as cognitive behavioral- and interpersonal therapy. Overall the treatments still need to improve, especially since existing treatment is not effective for everyone and is not reaching everyone [65]. The prescription of antidepressant medication in Sweden has doubled from 2006 to 2015 among children and adolescents though it varies greatly within the country [66].

### **2.1.4 Biological and psychosocial determinants of depression**

Patel et al. [67] mention several risk and protective factors in an overview of mental health among children and adolescents. The factors include biological risk factors such as head trauma, exposure to toxins in pregnancy, malnutrition and biological protective factors such as good intellectual functioning and physical health. Psychological risk factors include

learning disorders, abuse and neglect and difficult temperament. Psychological protective factors include good self-esteem and social skills. Social risk and protective factors are related to family, -school, - and community life. Risk factors include family conflicts and poor family management, academic failure, bullying, lack of appropriate school support, exposure to violence and discrimination. Protective factors include for example family attachment, opportunities for involvement in family and school, opportunities for leisure, positive role models and rewards for attainments and involvements.

Several studies find that biological aspects such as genes play a role in the development of mental disorders [3, 68, 69] and also that there is some heredity linked to the development of depression [68]. It has been emphasized that depression is caused by a lack of signal substances in the brain, and also that there are gender differences in this [70]. Research further point to the importance of the glutamate system as well as inflammatory causes [71]. Gene-environment studies indicate that genes and environment interact [72]. Environmental factors can play a major role even in disorders that are mainly inherited [73]. As an example Caspi et al. [72] showed that a short gene version for transportation of serotonin had an impact on the development of depression but risks were higher if the children in the study also experienced a difficult childhood. Depression is thus an interplay between genetic susceptibility and depression related stress in the environment, sometimes working its way via epigenetics.

Several studies also find that many different social and psychosocial factors play a role in the development of mental disorders [3]. The onset of depression in childhood and adolescence often indicate childhood difficulties [74]. Diverse childhood circumstances that have been linked to depressive symptoms, are for example, peer status [75] and bullying in school [76], parental divorce [77, 78], sexual and physical abuse [79], serious conflicts and long term financial difficulties [80]. Parental alcohol problems may also increase risks [79]. Spirituality on the other hand has been associated with lower levels of depressive symptoms [81] as well as high social support [82, 83].

### **2.1.5 Psychiatric comorbidity and impaired function**

The definitions of mental disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM) include both symptomatic criteria and functional impairment [84]. Using both is the most robust approach to adequately diagnose [85], and adds a dimension to the criteria. Several definitions of functional impairment exist as well as several measurements. To assess general functioning of children under the age of 18 the Children's Global Assessment Scale (C-GAS) [86] has been developed. It is a numeric scale (1 through 100) used by mental health clinicians where 100 stands for superior functioning and 1 for constant need of supervision. C-GAS have been found to have good psychometric properties [87].

Many mental disorders have been found to coexist but are sometimes difficult to disentangle [3]. Children and adolescents with concomitant depression and other mental disorders have been found to be more functionally impaired compared to those with depression only [88].

Comorbidity can indicate an increased risk of an additional mental disorder if you already have one. It has for example been found among young children with depression that the odds ratios are 17.7 for ADHD, 27.2 for ODD, 5.9 for CD, and 5.1 for anxiety [89]. Comorbidity can also indicate that both conditions share common pathophysiological processes. Prognosis and treatment can differ due to this [3]. Having major depression in co-occurrence with other mental disorders is common among adults [90], young adults [12], adolescents [91-93] and children [89, 92, 94]. In a Finnish study it was found that among young adults with a mental disorder, 59.2% had at least one additional disorder [12]. Among adult patients most of those with major depression have at least one additional disorder [90] and among young children comorbidity was the norm when having a depressive disorder [89]. Having not only depression but also additional mental health problems, e.g., anxiety, contributes to an even higher burden for the individual with a lower quality of life [80], longer duration of episodes and recurrence [95].

## **2.2 SOCIAL DIFFERENCES IN HEALTH**

Societies are often stratified [96] and the social position is a location in the structure. The social structure is rather stable and can influence health in several ways [96]. The relation between the positions made by the structural pattern is based on a principle of something, for example economy [96]. Structural differences refer to systematic inequalities between different groups of people with regard to access to limited resources. These differences can be described as a gradient or as a gap between one specific group and the rest of the population [97]. The gradient describe that every step down in the social hierarchy is linked to worse health. Inequalities can be due to unequal distributions of advantages, disadvantages, and exposures to risk and opportunity, material conditions, such as working conditions, poor housing and bad social environment.

The mechanisms that underpin social differences in depression among adolescents are several [98]. Some mechanisms that have been discussed to explain social differences in general are material factors, lifestyle, psychosocial factors, and selection [96]. These mechanisms include differences in available public resources, that unhealthy behaviors are more common in groups with lower social position, the stress from relatively lower social status, or selection (poor health causes low social position).

An often used framework that describe five different mechanisms for how health inequalities come about was developed by Diderichsen et al. [99]. The first mechanism describes that social stratification generates the distribution of wealth and power in society which direct the pathways to certain social positions. What position people reach depends on for example, inheritance, sex and ethnicity. The second mechanism describes that the social position is an indicator of the individual's likelihood to be exposed to health risks and opportunities. These exposures include for example work and living conditions but also health behaviors are affected by the social position. Mechanism three describes that there are differences in vulnerability. It indicates that the effect of a particular exposure depends also on other factors. There can furthermore be an interaction between different health risks

which can increase the susceptibility for health damaging factors of an exposure. Those with a lower social position more often experience several risk factors and the effect of one thus become larger than among those with a higher position. Mechanism four and five focus on different consequences of disease. The model also shows where it is possible to intervene to reduce social differences in health.

Comparing health between differently advantaged social groups is important to find out if policies lead to a greater or smaller inequities in health [100]. Mackenbach [101] presents some proposals on why there are inequalities even in welfare states. It can for example relate to the fact that unequal access to resources partly remain in spite of a welfare state or that the groups with lower social position are more homogenous concerning personal characteristics associated with poor health now than before, because of intergenerational mobility. Equity in health would occur when there are no systematic disparities in health or its determinants between groups of different levels of wealth, power or prestige [100].

It has been proposed that social differences can be more pronounced in childhood than in adolescence. The reason for this can be explained by the theory of social equalization [102]. It implies that adolescence is the life period when social differences are expected to be the smallest because adolescents have started developing their own social position [102]. Their social position is not necessarily the same as their parents, because adolescents start to interact a lot with friends and thereby develop their own social position [102]. However, in one study in which the hypothesis of social equalization was tested it was concluded that the theory was supported for some but not all health outcomes, and that there were gender differences [103].

In this thesis social differences are explored by using several different indicators of social position in childhood, i.e. parental education, household income and parental occupation. Other dimensions included are gender and having foreign-born parents, as well as two more circumstantial factors; parental employment status and living with one adult only. Most of these factors are traditional for examining inequalities in health but it should be mentioned that also other important dimensions exist, such as age, place of residence, ethnicity and disability [13, 104]. It has further been said that it is valuable to look into all these dimensions as they can provide different explanations for health inequalities [104]. They should however not be used interchangeably, as is sometimes done [105].

## **2.2.1 Education, occupation and income**

### *2.2.1.1 Education*

Education is often used as an indicator of social position and has its own implications for the stratification in a society [96]. It can rank individuals based on level and on prestige [106]. It is furthermore an indicator in the pathway between parental social position and own (class of origin versus class of destination) and as such having the possibility to hinder or facilitate social mobility. It is a rather stable indicator from young adulthood and



onwards as well as a rather inclusive measure for the adult population in countries with universal access as most people reach a certain level of education [107]. Education can represent immaterial resources and has been said to influence many aspects of life, like habits, social relationships, cognitive abilities and psychological resources [108]. It can be a marker of childhood social environment and can also be associated with health literacy, e.g. to be able to make use of information to change behaviors and prevent or manage disease and handle various treatments [105] or orientate in health care systems. Educational level would furthermore not change because of ill health later in life which could happen with occupation and income. Parental education can demonstrate this advantage even more. Changes and opportunities in education systems over time can bring some caution to the indicator of education. This is however not a big problem in studies with shorter time-periods and limited age spans [107]. The system for classifying and aggregating education in Sweden is called SUN (Swedish Education Nomenclature) [109]. SUN was developed in the 1960 and revised in 1998-99 to better correspond to International Standard Classification of Education (ISCED 97).

#### *2.2.1.2 Occupation*

Social class, based on occupation, is often used to indicate social position, sometimes measured on an individual level, sometimes on a household level. Many different theories surround the concept of social class. Two of the most influential theories were developed by Marx and Weber and circulate around ownership and life-chances. The major distinctions made are between employers, self-employed workers, and employees in both of these. However, Weber added a dimension to these by highlighting differences between different types of wage workers [110]. In Sweden the system of Swedish socio-economic classification (SEI) is used to classify occupations based on self-employed or employee as well as the skills that typically are required for the occupation [111].

Work is important also because it directly affects health in several ways; both the physical and the social work environment. It includes exposure to chemicals, noisy environments and repetitive work tasks, support, work pace, demands, autonomy and fairness. Several theoretical models deal with the connection of work and health and are described in the article by Kivimäki et al. [112]. The demand control support model indicate that work situations that are characterized by low control, low support and low demands lead to bad health. “The degree of control would then affect a person’s perception of opportunities to influence one’s own life, including health” [105]. The effort- reward model implies that if you have a “give and take” environment at work you will be healthier. The organizational justice model stresses that if you have high levels of perceived justice you will be more motivated and maintain better health. Your occupation is further related to income and education. Low education can be followed by a manual job which has worse conditions and lower payments. Double burden of work, meaning both paid labor and domestic unpaid work, may lead to stress and worse health [113].

### 2.2.1.3 *Income*

Income is another commonly used indicator of social position and Galobardes [114] proposes that it is especially indicative of material living conditions. It can also have the advantage of being continuous [115] though perhaps say less about the underlying mechanisms [116]. Much research has identified an association between income and health [117] and not only about poverty and health consequences thereof [118]. Both absolute and relative income matters to health and relative deprivation is something that might explain why income differences in health exist even in countries that seem rather equal [118].

Income, especially life time income, relates to both material and immaterial resources for health [105]. It affects for example housing, clothing, food, resources to seek professional help and opportunities to have a healthy lifestyle. Experiencing financial problems in childhood can be stressful for children and can also mean less access to coping resources. The family's economy determines what parents can arrange for their children, it influences choice of housing, living area and material resources. Having a tough financial situation is also affecting social relations with parents and peers [119]. Income is likely to fluctuate more than education over the life course. Furthermore, young people's lives are affected by the distribution of wealth within countries and regions. Where there are larger differences in the distribution young people are more vulnerable to adverse health outcomes, independent of their individual family wealth [118].

## **2.3 SOCIAL DIFFERENCES IN POOR MENTAL HEALTH**

Most health problems have been found to be more common among groups with lower social position [48]. Having parents with a low social position have been described to be an important risk factor for offspring poor mental health [30]. This can be due to exposure to an unfavorable social environment, such as abuse and financial difficulties in early life [30]. Early life is an important developmental phase and the unfavorable conditions can increase the likelihood for mental health problems among children and also reduce the possibilities for parents to get good health care for their children. Associations of these factors with internalizing or externalizing problems in children and adolescents have been demonstrated [30].

There is some complexity as to the reason that many mental health problems are more common among groups with lower social position [48]. Social conditions may be a consequence of poor mental health (selection) or low social position may increase the risk of poor mental health due to, for example, inadequate coping mechanisms (causation). Both ideas have been supported in mental health research [120, 121]. Selection or causation has further been found to differ depending on the psychiatric outcome. Dohrenwend et al. [121] suggest that the type of mental health problem can have different causal explanations. Depression was found to have the explanation of social causation to a higher extent than schizophrenia, where social conditions were more of a consequence (selection). Miech et al. [34] has found evidence for the selection mechanism in conduct disorder and attention

deficit disorder, but not in anxiety and depression in adolescence. Overall, most research favors the causation hypothesis [97].

As mentioned previously, there is often a social gradient in health meaning that each step further down in the social hierarchy is linked to worse health but some outcomes do not show this. Fombonne [122] did for example not find a clear gradient for autism in young age. Furthermore it has been proposed that the gradient of health inequalities flattens out at the higher and lower ends of the socioeconomic hierarchy of mental disorders among children in richer and poorer households, a “threshold effect” [123].

Social differences in depression can also be explored by an intersectional approach. Different axes of social power relations, such as socioeconomic status, gender and ethnicity can be interrelated in an intersecting process [124]. In a recent systematic review the importance of using an intersectional approach to better understand the risks for depression was highlighted [125]. In an American study of intersections of race, gender and SES in depression among adults, it was found that different indicators of social position act differently, depending on race and gender [126].

### **2.3.1 Education, occupation, income and depression**

The relationship between income, education, occupation and depression is not straightforward, as shown by studies among adolescents [23-37] and adults [25, 34, 83, 127-131]. With regard to studies on adolescents, most of them found at least one indicator of low social position linked to the increased risk of depressive symptoms, [23-33, 35] but in some cases an opposite association was found for another indicator of social position [27, 32, 33]. The relationship has not previously been studied among adolescence in Sweden. Miech et al. [34] has moreover concluded that different mental disorders are differently related to social position which point to the importance of research with measures of specific mental disorders and not overall measures of poor mental health. As for now only a few studies focus on adolescence and the relationship between social position and diagnosed depression or mood disorders specifically [34, 39, 132, 133]. Among adolescents in Sweden this has not previously been studied. In Sweden social inequalities have however been found in a number of diagnosed mental disorders among adults, such as in self-inflicted injury [134, 135] autism [136] and depression [128]. In the latter a social gradient in socioeconomic status (SES) and depression was found when SES was measured with income but not with education. Kosidou et al. [128] suggest that psychological distress and depression show different patterns concerning SES, with more pronounced social differences in more severe symptoms. They also found that in the lowest occupational class men had a higher risk of depression onset, but not women. In a Finnish study by Pannanen et al. [35], among adolescents and young adults, it was found that low parental education and manual occupation increased the risk of mental disorders overall.

Two recent studies, from Finland and the USA, with a focus on adolescence, show that financial hardship or low parental income in childhood increase the risk of diagnosed mood

disorders in adolescence but only the Finish study found the same for low parental education, though to a lesser extent [39, 132]. The study from the USA showed further that lower status parental occupation does not increase the risk.

### **2.3.2 Living with a single parent, unemployment and depression**

Structural but more circumstantial factors that can affect standards of living and economy, and that have been linked to depression are living with a single parent [33, 130] and parental unemployment [80]. Living with a single parent in Sweden appears also to increase the risk of other psychiatric diseases and suicide [137] as well as abuse in adolescence [137]. Children in single-parent families also report more psychosomatic symptoms than children in two-parent families [138]. To live with one parent only can indicate witnessing family changes such as separation or divorce which is a stressful life event that has been found to be a risk factor for depression [77]. On the other hand, children growing up with two cohabiting parents suffer less frequently from cognitive, emotional and social problems [139]. Two-parent families can for example provide more effective parenting, deeper emotional closeness and less stressful life events [139]. Spending time with both parents even though living with only one at the time, i.e. joint custody, which is common among adolescents in Sweden today, has further been found to be positive because adolescents then use parents as a source of emotional support to a higher extent than in single parent families [140]. Unemployment can for example indicate financial difficulties [137]. Åslund et al. [141] has furthermore found that experiences of shame mediate the association between parental unemployment and depression in adolescence.

### **2.3.3 Foreign born and depression**

Health inequalities between native-born and foreign-born often reflect immigrant's poorer social position [142, 143]. It relates to overall social living conditions [144], including current household conditions and psychosocial factors [145]. However adolescents with foreign-born parents have been found to have an increased risk of some psychosomatic symptoms compared to those with Swedish born parents also when their socioeconomic disadvantage was accounted for, however these results can be misleading due to attrition [138]. Furthermore, inequalities in depressive symptoms between immigrants and non-immigrants in Europe have been found to be larger in countries that have more restrictive integration policies [146].

Factors that might explain the poorer health of immigrants are those connected to country of origin, the migration itself or the society of destination [144]. All these factors can affect mental health and the impact of different determinants related to migration can plausibly also affect the health of immigrants' children. In most European countries, including Sweden, being an immigrant yourself appears to carry an increased risk of depressive symptoms and depressive disorders, at least among young adults [147] and adults [146, 148]. In general in Sweden it seems however that children of immigrants are better off than their immigrant parents' [149] and that parental geographical origin per se does not have a strong relation to

offspring's poor mental health [13]. However in Sweden the risk of suicide in children of immigrant parents is higher compared to their parents [149]. A study from the USA shows that immigrant children have higher rates of depression than non-immigrant children [150].

The immigrant paradox or acculturative stress provides two different perspectives on immigrant health [150]. Immigrants can represent a group that is particularly healthy (healthy immigrant effect/paradox) or a group that is exposed more to disadvantage (acculturative stress). Among adults it has also been found that social capital can explain differences in mental health for some immigrant groups [151]. Furthermore, norms and health attitudes that immigrants bring can shape how they respond to illness [152]. According to Rostila [153] immigrants sometimes flock together in the country of destination and if their social networks do not include natives this might worsen health if it's a network that maintains norms that relate to health behaviors that are damaging.

Furthermore, how depression is expressed and articulated in different cultures can vary [154] as well as literacy skills. The World Health Organisation (WHO) defined health literacy as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health"[155]. Literacy skills include interaction with the health care system but also skills to interact with other social systems like schools and social welfare [156]. As one example, literacy skills among immigrant families have been found to be lower among new comers to Canada [157].

A drawback in many studies, likewise in the current thesis, is that people from various countries, with various immigrant status, are put together in broad groups which makes it difficult to really know if there are differences within these groups [118] as well as between, and also what underlying factors actually have bearings for different health outcomes.

## **2.4 GENDER AND POOR MENTAL HEALTH**

Gender is another dimension of stratification. The concept of gender is trying to disentangle constructions of people's social sex. As such, gender is constructed and hence something that can change – perceptions about what is feminine and masculine might vary [158].

In general women live longer than men but have higher morbidity rates [159]. Further, the presence of poor mental health is similar between men and women while specific conditions, such as depression, differ by gender [53]. The reason as to why gender difference exist include biological, psychological and social factors and these should possibly be considered together to provide the full answer [160]. Psychosocial and social factors include for example the work place and work environment as well as a segregated labor market. Moreover, men more often have jobs with higher status and income. More income means more economic resources and could result in better housing, food and an increased possibility to seek care [105]. Women entering the labor force could get a double burden if they still also take care of

domestic work which could lead to more stress and worse health. Yet another example is that men and women may engage in different health behaviors. Gender may also affect how you are treated by a doctor [161]. Even though there has been a notion of gender neutrality in the medical culture Malterud suggests that gender still matters in medicine [161].

To study gender differences can be challenging [118] with the risk of preserving traditional gender roles. It is important not to forget that differences also exist within the groups of men and women, and that situations are changing over time.

#### **2.4.1 Depression in men and women**

Depression has, for a long time, been considered predominantly a women's disease but recently more attention has been given to men [e.g. 162, 163, 164]. Most studies show that women more often have depression compared to men [165]. Depression is however, a common problem among men as well [12] and an increasing problem among young men [14]. Gender differences in depression are not about perceived differences in depression as such but rather about how it is expressed [166, 167]. Some of the differences in men's and women's portrayals of their depressive symptoms include that men can be more prone to express physical symptoms e.g. chest pain, anger and externalising symptoms, whereas women are more likely to emphasize guilt, shame, sadness and internalising symptoms [168-170]. Furthermore, some men find it taboo to talk about feelings [168] even though young men have been found to more often talk about emotional distress than elderly, a notion that can indicate that they bridge gendered norms [168].

The gender gap has been found to have its onset in early adolescence. Rates of depression in childhood are somewhat higher among boys but start to become more common among girls in early adolescence [45]. Several explanations have been proposed to explain the gender gap. Cyranowski et al. [171] provides one theoretical model which aim to explain the predominance of depression in adolescent girls. It is based on the idea of correlated consequences. They describe girls to be more vulnerable to depression because of the combination of a more affiliative style in social relations and transition difficulties, which is triggered by negative life events. A difficult transition includes insecure parental attachments, anxious temperament and low coping skills. This can affect anxiety levels and consolidate with affiliative needs that are affected by gender socialization and hormonal changes at puberty. Together this leads to depression-provoking stress vulnerability (diathesis) that includes high affiliative focus, low attachment security, high anxiety and low instrumentality, which is then triggered by negative life events, and cause depression.

#### **2.4.2 Masculinity and experiences of depression**

Research focusing on men's experiences of depression using a qualitative approach was very rare or non-existent before 1996 [172]. Much of the more recent research about experiences of depression has been conducted in North-America, with less focus on young people specifically, except from those conducted with college students in Canada [e.g. 162]. Most

of the few studies conducted in Sweden include both men and women, as well as mixed age groups [e.g. 173, 174].

Even though the concept of masculinity as such have been criticized for being too vague [175], much attention has been given to masculinity and depression lately. The role of gender and masculinity in relation to depression among men has been highlighted in several conceptual frameworks such as the masked depression, the masculine depression, and the gendered responding framework [176]. In all those it is argued that masculinity and gender norms, through gender socialization, may influence how men learn to experience, express and respond to emotions and depression [176]. The gendered norms include the masculinity considered as the ideal in a particular society and it brings high status and independence and serves as a benchmark when masculinities are constructed [176, 177]. It has previously been described that masculine ideals and cultural constructs influence men's experiences of depression [20, 168, 178, 179]. The common notion of depression to be associated with passivity, low self-esteem and tiredness can collide with the notion of what masculinity is about [166]. Men's depression could be hidden because the distress is constrained by the notion of ideal masculinity [167]. A number of studies of men's experience of depression have shown that typical symptoms of feeling mentally ill, e.g. showing vulnerability, struggling and asking for help could be seen as signs of weakness [172]. Depressed men experienced that they have to be strong, successful and independent in solving problems [172], managing on their own [20] and performing well [168, 172]. Masculine gender norms, generally encourage action and discourage contemplation, and men may respond with externalizing symptoms to depression instead of internalizing symptoms as women do [180].

Adapting a different notion of ideal masculinity could perhaps improve men's mental health. Courtenay highlights that "men and boys are not passive victims of a socially prescribed role" [181]. From a social constructionist perspective men are seen as active agents in constructing the ideal masculinity. This means that, "*boys will be boys differently, depending upon their position in social structures and, therefore, upon their access to power and resources*" [182]. How each man for example demonstrates "being tough" can be influenced by the man's age, ethnicity, social class and sexuality [183]. There are also men that do not confirm to traditional notions of masculinity as well as there are women that adopt notions of traditional masculinity and behaviors related to it. A recent systematic review and metasynthesis [184] about men's perspectives on depression with a focus on masculinity conclude that traditional masculinity norms can hinder, but also facilitate men's coping with depression.

### **2.4.3 Gender, social position and depression**

Gender and low social position may contribute to the development of internalizing difficulties, independently but the notion that the combinations of social factors have deleterious effects on mental health has been theorized by several. Already in the 1970 Beale [185] brought up the idea of double jeopardy, i.e. that "several sources of social disadvantage

interact to produce especially problematic outcomes”. Previous research finds mixed support for “double jeopardy” of gender and social position and depression, possibly related to different effects in different life stages and because of different definitions and measures of social position and depression. McLeod and Owens [186] found for depressive symptoms (reported by mother) that girls were less strongly affected by household poverty than were boys. Among adults, Gilman et al. [28] suggest that low socioeconomic status in childhood may be associated with greater depression among women than men. Other studies on gender-specificity, among adolescents, and overall poor mental health have shown inconsistent results [30, 31, 37]. Some show girls to be more vulnerable [187, 188]. One example is that Mendelson [188] found that a subgroup of girls with the lowest parental education and household income had a higher risk of internalized problems than boys with lower education and income. Conversely, some studies find the opposite [30, 189, 190], for example Huisman et al. [30]. They found that boys in single-parent households had a higher risk of internalized problems than girls. Yet other studies didn’t find any gender-specific risk of depressive symptoms in relation to social position [23, 31, 191]. Reiss et al. [37] concludes in a systematic review that there is inconsistency in gender patterns in social position, possibly due to various measures of poor mental health.

Studies looking at gender differences in relation to social position and diagnosed depression among adolescents are sparse but one recent study from Finland has been conducted with a focus on late adolescence [132]. Small gender differences between parental education, income and depression, were found. Another study focuses on middle adolescence among black youth in the USA [192]. They conclude that both ethnicity and gender influence how self-reported household income is associated with the risk of depression (diagnostic interview by lay people). There was a stronger protective effect of household income on depression for females than males. Furthermore, African American males with high income had an increased risk of depression whereas the opposite was found for Caribbean blacks.

## **2.5 LIFE-COURSE PERSPECTIVES**

Life course epidemiology has mainly focused on the impact of childhood exposure on health in adulthood [193]. The principles of life course epidemiology apply however also to health in later childhood and adolescence [194]. Socially patterned early childhood exposures can impact on later childhood and adolescent health [194]. There are two general models that often are used to show how circumstances in early life can impact health later on in life. Low social position in early life can influence depression later in life through sensitive/critical periods of development (latency model) or, low social position in early life can be linked to depression through intermediate risk factors/pathways (chains of risk model) [195]. Park et al. [196] reviewed the literature and concluded that most life course studies on social position and depression focus on social position in adulthood as an intermediate factor between early-life social position and adult depression. There seem to be evidence for both a direct effect of early-life social position and an indirect relationship. Korhonen et al. [132] found further that adolescents from socioeconomically disadvantaged backgrounds were more likely to embark



on an educational track that was associated with greater risks to poor mental health, in line with the social pathway model. They conclude that an early onset of depression affect educational choices and opportunities of adolescents.

Life-course studies, especially longitudinal ones with repeated measures of social position and depression, are important from a policy perspective [197] *“To determine whether a program that treats persons with mental illness in the lower social strata early in the life course can be expected to have lasting effects or whether new subsets of persons in the same cohort can be expected to develop new cases of mental disorders over time”*.

## **2.6 HELP-SEEKING**

Both illness and non-illness-related factors play a role in seeking help for mental health problems. Symptoms of the disease [18] as well as the impairment from it are [19] but non-illness-related determinants such as individuals' resources to handle problems are also important. For instance, those with a mental disorder that have lower social support, have been found to more often use mental health services [198]. Reasons for not seeking help could among others be a feeling of shame [199]. This relates to the stigma that is often attached to seeking care for mental health problems and which can affect ones attitude towards psychological treatment [200].

In general, it is suggested that a large number of depressions are undetected [15]. Overall, in Sweden, it has been found that half of the adults with depression and/or anxiety had been in contact with health services due to that specific condition [15]. Similar results have been found in other countries. In a Finnish study it was also found that half of those fulfilling criteria for depression did not feel a need of help from mental health care services [201]. An Australian study found that about 40 percent with depression did not seek help, often motivated by a wish to cope on their own [17]. Adolescents have been found to seek care to an even lower extent [16]. Further, men have been found to be more reluctant than women [17] and young men less likely than elderly men [164].

In Sweden it has been found that groups of low social position to a larger extent refrain from seeking the medical care they need [202]. The pattern for mental health problems is more diverse. In Holland for example it was found that those with lower education used primary care to a higher extent and mental health services to a lower extent but lower education tended to strengthen the association between mood or anxiety disorder and primary care use [203]. Among adults with depression and/or anxiety in Sweden, highly educated people were found to be more reluctant to seek care [15]. In Finnish studies [35, 204] it has further been suggested that children of parents with higher socioeconomic position may have better access to mental health care.

Adolescents in Sweden with parents born in middle or low-income countries have further been found to use psychiatric care to a lesser extent than native-born Swedes [205]. It has also been suggested that class should be taken into consideration when people with

depression engage with professional services because in deprived areas depression can to a higher extent be considered a normal response to troublesome life events and environment but in affluent areas depression can to a higher extent be seen as a treatable disease [47].

Social position can also have an impact on what is considered ideal masculinity even though most men in a given society generally agree upon what is considered ideal, such as not asking for help [206]. Seeking help has been found to challenge men's masculine identities [21] and masculine ideals and cultural constructs can influence men's help seeking behaviour for depression [164, 207]. Men have also been found to dismiss their health needs and take risks and by that legitimising themselves as the stronger sex [206]. Seidler et al. [208] have in a recent systematic review investigated the role of masculinity in men's help-seeking for depression and conclude that conformity to traditional norms of masculinity have a problematic impact on their help-seeking. Furthermore diagnostic decisions can be gender-biased. Potts et al. [209] found for example that clinicians were more likely to identify depression in women than in men. However, links between help-seeking and gender are likely to be complex [210]. The gap is certainly about more than men's negative attitudes. It includes those structured social norms which are reconstructed in interactions where also women contribute to the norms of masculinity [211]. Area status can also impact on this as it has been found that those from higher status areas are more tolerant of less ideal masculine traits [212]. MacLean et al. [213] found that both adolescent boys and girls believe that there are negative consequences of demonstrating psychological symptoms but that the consequences would be larger for boys. O'Brien and colleagues [21] found further that some men are not particularly reluctant at all to seek help. Additionally, some men challenge the hegemonic masculinity and actually explore their emotional vulnerability with professional help [178].

## **2.7 THE SWEDISH SETTING**

The context for this thesis is Sweden and mainly Stockholm County, though some interview data was collected in the County of Malmö.

Sweden is described as a welfare state with a social democratic regime typology with the aim of providing resources to all societal levels and not only a minimum for the most disadvantaged [214]. Sweden is part of the Nordic countries with a welfare system that have relatively high taxes and low rates of poverty. It is a system which strives for full employment and has active labor market policies, relatively generous benefit levels, high quality public care services and rather small social and gender inequalities [118].

Sweden is today a country with many different ethnic groups [215]. Approximately 13 percent of the country's inhabitants were born outside the country [215]. In 1945-60 most people came from Eastern European countries, after that and up to the 80s most came from other Nordic countries. After 1980 most people came from countries outside Europe. In 1998, 23,5% of the 12 year-olds in Stockholm County had a foreign background (one or two

parents born outside Sweden) [216]. Children and adolescents in Sweden live predominantly with both their parents (biological or adoptive parents) though it varies somewhat with age. Overall, among those 18 years or younger 74% live with both their parents [217]. Among the 1-year olds 90% live with both parents and among the 17-year olds 58% do so. This has been rather stable over the last 10 years. Compared to several other countries the share of those living with two original parents is relatively low in Sweden [218]. For children with separated parents, joint legal custody is the default practice and about one third of those children spent equal amount of time with both parents in 2006/2007 [219].

People in Sweden in general hold relatively high educational levels. Among 35-44 year olds 10% have a low (pre-secondary education), 39 % a medium (upper secondary education) and 48% a high (post-secondary education) level. There was an economic crisis in Sweden in the early 1990 with consequences for the people, such as lower employment rates among both youth and adults and increased poverty [220, 221]. Rates of poverty have even so remained low in Sweden compared to many other countries [220]. In the second half of the 1990 (when data collection for study I was partly done) income levels increased as well as employment rates. However, income inequalities increased during the whole period and have continued to do so from 2000 to 2015 [222].

An increased gender equality has been reached by for example enabling women to work by providing day-care for children and encouraging men to take parental leave [223]. Some define Sweden as a feminine society because there is a belief in gender equality and a society with less occupational and educational segregation [224]. This can further be encompassed by the non-dominant breadwinner model which is central nowadays. Ideal traits of masculinity, such as being career oriented are paralleled with engagement in child care [223]. However, traditional notions of masculinity and the ideal man still remain to some extent and gender equality can further be less common among people with lower social position. The latter can be exemplified by the fact that equal sharing of parental leave is more common among highly educated couples [225].

The Swedish government adopted a resolution in 2003 stating the overall goal to create societal conditions for good health on equal terms for the entire population [226]. Recently this was reformulated and now there is an even clearer focus on equality. The present goal is to “create societal conditions for good health on equal terms for the entire population and closing the preventable health gap in a generation” [227].

To tackle social differences in health, a welfare state can impact in several different ways [142]. To intervene on disadvantageous conditions in young ages, especially during critical periods, can level out differential susceptibility. Improving environmental, psychosocial and behavioral conditions can combat differences related to exposure to risk factors [228]. On the structural level, work with social policies, such as taxes, transfers and high quality child care

and educational systems can be of use [228]. Offering equal access to health care services and treatment is yet another strategy that can reduce social differences.

### **2.7.1 Mental health services**

In Sweden, mental health services are primarily financed by tax. The usage of out-patient mental health services in Stockholm, have changed somewhat during recent times. In 2006 usage was more common among young adults than among adults, but before 1999 the opposite was true [229].

In Sweden the mental health services are mostly financed by taxation, but private services also exist. Up to the age of 18, The Public Child and Adolescent Mental Health Service (CAMHS; in Swedish, BUP) is available and most young people seeking care for mental health problems are treated there. Referrals to CAMHS can be made from primary care, children and adolescents can also seek themselves or via their parents. It is free of charge as are youth clinics that provide some mental health services for 12-23 year olds (in some County Councils up to 25). Primary care with public general practitioners, counsellors and therapists (low fee) or private therapists (high fee) as well as internet-based psychiatric help is also available, or in acute cases, there are psychiatric emergency units. Waiting times vary between different places but internet-based help is in general more rapid. Statistics from CAMHS show that anxiety and mood disorders account for most of the diagnoses/symptoms but autism, ADHD/attention deficits, conduct, sleep and eating disorders as well as identity problems are adding to the picture (3-6%). Every 20<sup>th</sup> child/adolescent aged 0-17 has been in touch with CAMHS during a year.

### **3 AIM**

The aim of this thesis is to enhance the knowledge about social and gender differences in depression among adolescents and young adults.

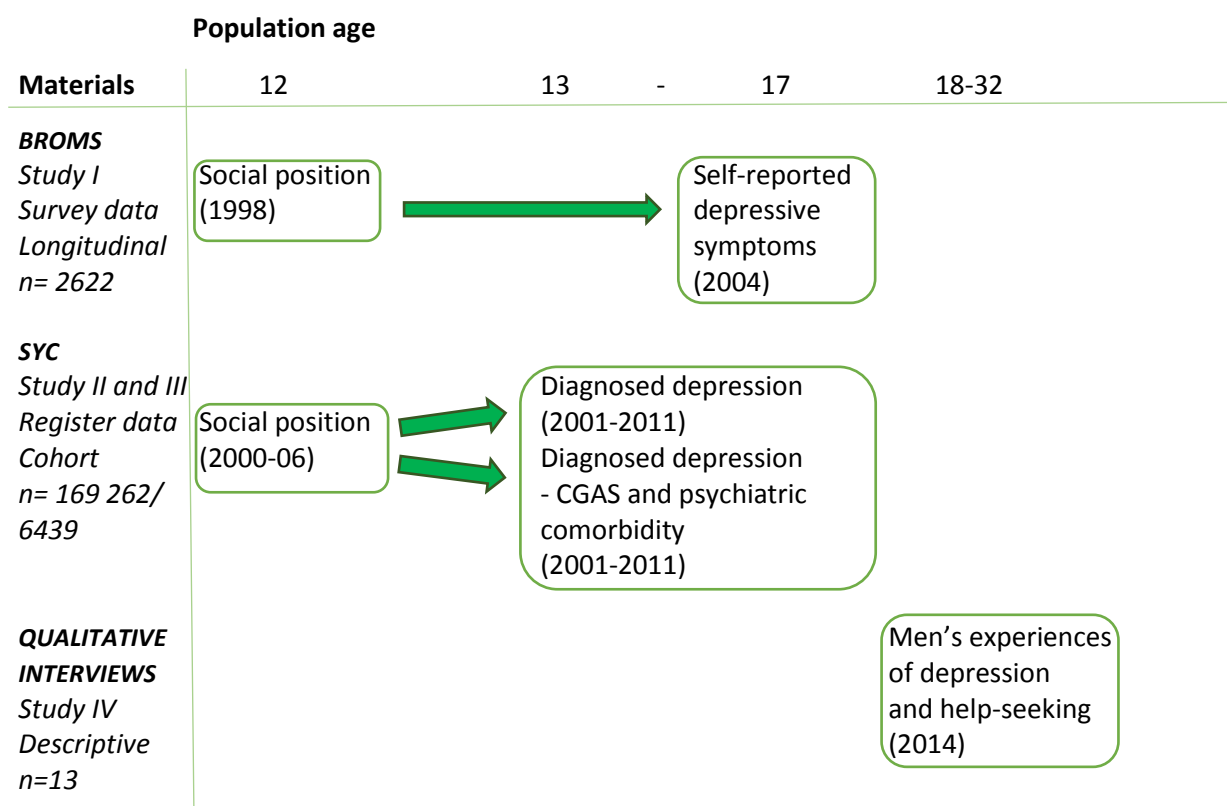
#### **3.1 RESEARCH QUESTIONS**

1. Does low social position in childhood increase the risk of depression in adolescence? (Study I and II)
2. Does low social position in childhood increase the risk of psychiatric comorbidity and low psychosocial functioning among adolescents with depression? (Study III)
3. Are there gender differences in risk of depression based on social position? (Study I and II)
4. Are there gender differences in risk of comorbid depression and psychosocial functioning among adolescents with depression? (Study III)
5. How do young adult men experience depressive symptoms and help-seeking in relation to their conception of masculinity (Study IV)

## 4 MATERIAL AND METHODS

Three different materials were used to capture a comprehensive picture of social differences, gender aspects and depression. Register data made it possible to study diagnosed depression alone and together with coexisting disorders in a large study population while self-reported survey data was used to capture depressive symptoms not confounded by care seeking behaviour. Interview data was used to explore how young adult men experience depressive symptoms and help-seeking in relation to their conception of masculinity.

*The BROMS cohort* (a Swedish acronym for Children's Smoking and Environment in Stockholm County) is a cohort study designed to investigate tobacco use among adolescents in Stockholm, Sweden. It was used for study I and also includes information about parental education, employment, country of birth and occupation, and single parenthood in 1998, and self-reported depressive symptoms in 2004. *The Stockholm Youth Cohort, SYC* was used for study II and III, and is a register with information about social position and diagnosed depression as well as other mental disorders. It contains all individuals aged 0-17, residing in Stockholm County any time during 2001 and 2011 (for the current studies). *Qualitative interview data* was used for study IV and was gathered in 2014 from interviews with young men living in Swedish metropolitan areas that reported depressive symptoms and had sought care for them.



**Figure 1. Overview of the four studies included in the thesis**

#### **4.1 BROMS – CHILDREN’S SMOKING AND ENVIRONMENT IN STOCKHOLM**

The BROMS study started in 1998 when 6 294 adolescents in 5th grade from 118 schools in Stockholm were invited to participate. Among those, 3020 adolescents from 91 schools participated (48%). Mean age of the participants in 1998 was 11.6 years [230]. In total, eight surveys have been conducted with the same adolescents, once every year, starting in 5th grade, with a pause the first year after compulsory school (1998-2005) and one five years later (2010) [230, 231]. In addition, a survey was also conducted among the children’s parents or other guardian at baseline in 1998. The BROMS cohort is a rich source of information about health and living circumstances among adolescents, and comprises information regarding a variety of social and health-related factors. A self-rating inventory aimed at measuring symptoms of depression was developed and included in the survey sent out in 2004. In study I, the cohort was restricted to adolescents answering both the baseline survey in January 1998, at the age of 11-12 years, and the follow-up survey in January 2004, at the age of 17-18 years, whose parents or other guardian had answered the parental questionnaire in 1998. This corresponds to 2 622 adolescents, i.e. 87% of the eligible cohort members.

#### **4.2 SYC - THE STOCKHOLM YOUTH COHORT**

The Stockholm Youth Cohort (SYC) is a register based cohort, containing all psychiatric care of children and adolescents in Stockholm County Council as well as several measures of social position. SYC contains all individuals aged 0-17, residing in Stockholm County between 2001 and 2011, ascertained from the Swedish register of the Total Population [232]. The SYC is built up with linkage to several different health care and administrative registers by the personal identification number for each individual (recoded for research use). The registers used for the current thesis were; The Public Child and Adolescent Mental Health Service (CAMHS. In Swedish BUP) which include public psychiatric in-and outpatient care in Stockholm County; The Longitudinal Integration Database for Health Insurance and Labour Market Studies (LISA, Swedish acronym) [232] which was established in 1990 and includes information about employment, education, income and social benefits for those over 16 years old, residing in Sweden; The Cause of Death Register [233] with data from 1952 including death dates and causes of death (according to ICD) for people residing in Sweden; The National Patient Register which initially included all patients treated in psychiatric care and some somatic care at public hospitals but now also with information about all public in-patient (from 1984) and out-patient visits to specialized clinics at hospitals (from 2001) in Sweden [234] but not from primary care; Health care registers called VAL (Swedish acronym) in SLL (Stockholm County Council) that include in-and outpatient care for residents in Stockholm County, including public and private outpatient care clinics and primary care facilities as well as hospitals for public and private inpatient care, financed by SLL but not private specialists [235]; The Multi-generation register which is part of the Total Population Register and includes connections between index persons (people registered in Sweden from 1961 and those born in 1932 or later) and their parents [236]. The original databases are held by Statistics Sweden and the

National Board of Health and Welfare (government agencies in Sweden). SYC is retained at the Department of Public Health Sciences.

The study population for study II and III in the current thesis was extracted from SYC and is defined as adolescents who were residing in Stockholm County the year they turned 13, between 2001 and 2007, i.e. 7 cohorts (born 1988-1994). A total of 169 262 adolescents were followed for five years, until they turned 18, in 2005-2011. A closed cohort design was employed. Individuals were censored at whatever occurred first: time of first depression diagnosis, death, moving out of Stockholm County or end of follow up at age of 18. Age was restricted to 18 as individuals in the Swedish health care system are then considered adults and shall seek care at mental health services for adults. For study III the study population was further restricted to include only those adolescents with depression (n=6439).

### **4.3 EXPOSURES AND COVARIATES STUDY I-III**

Several different exposures and covariates were used in the epidemiological studies in this thesis to investigate social and gender differences in depression. The included variables from BROMS (survey data) and SYC (register data) are parental country of birth, parental education, parental occupation (social class), household income, living exclusively with one adult, parental employment status, parental receipt of an unemployment benefit, and gender. Measurements of parental social factors for study I was done in 1998 except from the measure of living exclusively with one adult which was derived from 2004. All measures of familial social position for study II and III were assessed when the child was 12 years old, the year before the start of follow up. For a specification see Table 1. Parents were defined as social parents, i.e. persons that the child lives with, including biological parents, adoptive parents and other adults responsible for the child.

#### **4.3.1 Social factors**

*Parental country of birth* was classified as having non-Swedish parents if the lone or both parents were born outside of Sweden, where the parental country of birth geographically closest to Sweden was used in the categorization. In study I it was categorised into born in Sweden or not whereas in study II and III it was categorized into born in Sweden, born in the Nordic countries (but not in Sweden), or born outside the Nordic countries. It was aimed to assess the child's family culture, not psychosocial assets. Having at least one parent that is born in Sweden was considered to imply that you at least have some part of the "Swedish culture" and thus some knowledge about the Swedish health care system.

*Parental education* was based on the parent with the highest education and in study I defined as number of full years in school and categorized into three levels; low education (compulsory school, 0-9 years), medium education (upper secondary education, 10-12 years) and higher education (post-secondary education, 13 years or above). In study II and III the classification was done according to SUN (the Swedish standard for classification of individual educational programs) [109] and categorized into three groups; low (pre-



secondary education corresponding to nine years or less), medium (upper secondary education of two or three years), and high (post-secondary education of less than three years or three years or more)

*Parental occupation* (social class) was measured in Study I and was defined as the parent (mother, father or other parent) with the highest class using the highest to create family social class. It was based on seven categories according to Statistics Sweden classification of socioeconomic classification [237]. The classification is based on the type of work accompanied by the level of education that would be required in general. The categories were non-skilled workers, skilled workers, lower non-manual employees, intermediate non-manual employees (intermediate non-manual employees that also were self-employed were categorized as self-employed because for lower social classes the self-employment better capture correct status), higher non-manual employees and “others” (farmer, unemployed, student, house wife, conscript, retired, no code notification). Manual workers include unskilled and skilled employees in goods or service production. The occupations are normally organized by the Swedish Trade Union Confederation (LO). Non-manual employees include occupations that are normally organized by TCO (The Swedish Confederation of Professional Employees) or SACO (The Swedish Confederation of Professional Associations) and include assistant and intermediate non-manual employees, professionals and other higher non-manual and upper-level executives in private enterprises or organizations with at least 100 employees or in public service.

*Household income* was measured in study II and III. It is an individualized weighted average income, i.e. the sum of the family members’ disposable income multiplied by the individual consumption weights and divided by their aggregate consumption weight [232]. It was categorized according to the distribution within the study population in quintiles; low, medium-low, medium, medium-high and high.

*Living with one adult only* was measured in study I and was based on the adolescent report of who they live with in 2004. It was categorised as living with two or more, or living with one adult (in most cases parents but can also include grand-parents etc.). *Parental employment* status was measured in study I and was reported by the parents in 1998. It was categorized as being presently employed, or not. If any one of the parents were employed the adolescent was classified as having employed parents. In study II and III *parental receipt of an unemployment benefit* was measured. It was defined and categorised as, two, or the single parent receiving it once or several times, or not, during the last year. All the factors in this section were used as factors likely to affect the economy of the family but they can also capture psychosocial circumstances in the family.

## **4.4 OUTCOME VARIABLES STUDY I-III**

The main outcome variable in this thesis is depression. It was measured by self-reported depressive symptoms in the material based on BROMS and by first time diagnosis set by clinicians in the material based on SYC. Psychosocial functioning (CGAS) and psychiatric comorbidity was measured among those with depression in the material from SYC.

### **4.4.1 Self-reported depressive symptoms**

The inventory in BROMS (used for study I) was based on DSM-IV [84] but it also corresponds to ICD-10 but had the last 30 days as recall instead of 14 days as in DSM-IV and ICD-10, and contained 12 items (DSM-IV contains 9 symptoms, ICD-10, 10). The inventory did not include questions concerning suicide because it was considered to be an ethical problem to ask the study population at hand. Neither is the question on guilt included in the inventory. In DSM-IV that issue is incorporated with a question on self-esteem. No specific question on restlessness or being subdued is included (item 5 in DSM-IV) but one on feelings of being sulky/whining is added. ICD-10 also adds lack of energy as core. Apart from the above mentioned items the present inventory covers the DSM-IV diagnostic criteria. The score of the inventory range from 0 to 30 since four options were possible; never (0), sometimes (1), often (2) or very often (3).

Two different dichotomous categorizations of depressive symptoms were used in study I. One measure was constructed to mirror the criteria from DSM-IV (DSM-IV criteria based) and one was a summary score of all 12 items in the questionnaire with a score of 17 indicative of depressive symptoms (Score 17). Cronbach's  $\alpha$  [238] showed a consistency for the 12-item inventory of 0.87.

Among those experiencing depressive symptoms according to Score 17, 28.6% reported at age 23-24 a diagnosis of clinical depression at some point in their life. The corresponding proportion for those experiencing depressive symptoms according to the DSM-IV criteria-based measure was 26%. Among those without depressive symptoms, 9.9% reported a clinical depression at some point in their life. Among those reporting having had a diagnosis, 29.9% had depressive symptoms at age 17-18 according to Score 17 and 14.9% according to the DSM-IV criteria-based measure, compared to 9.9% of those without a reported diagnosis. In addition, 52.4% of those with depressive symptoms according to Score 17 also had depressive symptoms according to the DSM-IV criteria-based measure, and 91.6% of those with depressive symptoms according to the DSM-IV criteria-based measure had depressive symptoms according to Score 17.

### **4.4.2 Diagnosed depression**

Diagnosed depression was defined as a first time depression diagnose registered at CAMHS, or in VAL. Diagnoses are clinical and were not established specifically for the aim of this thesis. Depression was defined as to include major depressive disorder, unspecified depressive disorder and dysthymic disorder (DSM-IV: 296.20-24, 300.4, 296.30-36, 311

including the DSM-IV based diagnostic code 19 used at CAMHS; ICD-10: F32.0-9, F38.0-8, F39, F33.0-9, F34.8-9).

#### **4.4.3 Psychosocial functioning and comorbid depression**

In study III a subsample from study II was subtracted, to include those adolescents with depression to assess social differences in psychosocial functioning and psychiatric comorbidity. Psychosocial functioning was measured with the Children's Global Assessment Scale (CGAS) [86] (for the CGAS scale see appendix 3). It is a numeric scale (1 through 100) used by mental health clinicians where 91-100 stand for superior functioning and 1-10 for a constant need of supervision/24 hour-care. For study III this scale was dichotomized into 1-60 (at its best; variable functioning with sporadic difficulties or symptoms in several but not all social areas) and 61-100 (at its least; some difficulty in a single area but generally functioning well). The CGAS value was considered if it was registered +/-14 days in relation to the diagnostic date for depression. Comorbid depression was defined when the diagnosis of first time depression co-occurred with other mental disorders, i.e. depression and additional disorders registered +/-14 days in relation to the diagnostic date of depression. CGAS values were retrieved from CAMHS and information about depression and other mental disorders was retrieved from CAMHS and VAL.

Comorbid depression was assembled in four different groups; **1. Internalizing disorders;** anxiety. **2. Externalizing disorders;** substance related disorders, behavior disorders/conduct disorders/disruptive behavior disorders. **3. Developmental disorders;** attention-deficit disorders, communication disorders, pervasive developmental disorders, learning disorders, mental retardation, motor skills disorders, tic disorders and other disorders of infancy, childhood, or adolescence. **4. Other mental disorder;** feeding and eating disorders of infancy or early childhood, elimination disorders, eating disorders, bipolar disorders, schizophrenia and other psychotic disorders, delirium, dementia and amnestic and other cognitive disorders, mental disorder due to a general medical condition not elsewhere classified, somatoform disorders, factitious disorders, dissociative disorders, sexual and gender identity disorders, sleep disorders, impulse-control disorder not elsewhere classified, adjustment disorders, personality disorders, unspecified mental disorder, behavioral disorders associated with physiological disorders and physical factors. (For diagnostic codes see appendix 4).

#### **4.5 INTERVIEW DATA STUDY IV**

A qualitative descriptive study with interviews as the data source was conducted as study IV. Rich portrayals of depression and help-seeking were captured by individual face-to face interviews. It was done in addition to the epidemiological studies because it allows descriptions of the lived experience of depression and the possibility to find out about the variety of meanings that can be attributed to it by patients and significant others. The entry point in study IV was that the experiences of depression and help-seeking are influenced by the social context [239].

#### **4.5.1 Design and framework**

The study was designed as a descriptive, qualitative study [240]. It is a design that “allows a focus on straight descriptions of a particular phenomenon” [240]. It was chosen because it made it possible to stay close to the men’s stories and use a less abstract rendering of data, which suited the aim of the study.

The study was influenced by a constructionist framework and thus with the assumption that different aspects are changeable and created in relation to a varied and complex context. It is about the constructed truth created by people. Gender can be seen as a construction where the collective truth (socially constructed truth) is that men behave in one way and women in another, for example the notion that women would be better suited to care for small children than men.

#### **4.5.2 Data collection and participants**

Purposeful sampling [241] was used to reach young men with both experience of depression and of seeking help for it. They were strategically chosen from a database with people enrolled in a randomized controlled trial, named Regassa. The aim of Regassa was to evaluate effects of different treatments (physical activity, Internet based cognitive behavioral therapy and treatment as usual) for depression [64]. Inclusion criteria for study IV were: those participating in Regassa, having male sex, being 18 and 32 years old, living in big cities in Sweden and speaking Swedish. Sample variation is crucial in qualitative studies and should not be too big or too small [242]. Focus for the present study was on young men since it has been found by others that experiences could be expressed differently, not only between men and women but also between young and elderly [168] but allowing variation in social background and phase of illness. Only men living in big cities were included because available care facilities were assumed to differ between rural and urban areas.

The study population of Regassa was patients, aged 18-71, and recruited from primary care and occupational health services in six county councils in Sweden; Blekinge, Västmanland, Kronoberg, Skåne, Västra Götaland and Stockholm. Recruitment was done from February 2011 until December 2012, in two phases: phase one encompassed screening, using the Patient Health Questionnaire-9 (PHQ9), 10 points or above as eligible participants (patients with severe somatic disease, anxiety or addiction as main diagnosis or comorbid diagnosis with addiction were excluded). In phase two, a detailed psychiatric interview was conducted using, among others, the Montgomery Åsberg Depression Rating Scale, MADRS [243]. In the second phase, suicidal patients and those with other severe problems were excluded, with referral to GP. Remaining patients were randomized to the three treatment strategies lasting for 12 weeks and then examined again according to procedures in phase two.

Twenty-seven men fulfilled the inclusion criteria for study IV. They were contacted when some amount of time after the RCT had passed to allow time for reflection. The men were sent a letter with information about the study, the use of tape recording, data handling, that it

was voluntary and that they would receive a phone call to get more information. The men who wanted to participate agreed on a time and place to meet, together with the main author. Of the 27 men that were contacted, 13 agreed to be interviewed. The individual interviews were conducted in group rooms in two different metropolitan areas in Sweden between November 2013 and May 2014.

An interview guide with open-ended questions was used (Appendix 2). The men could speak freely, which most of them did. The majority of interviews lasted slightly more than 60 minutes. The main author transcribed the recorded interviews verbatim to increase trustworthiness [242].

The men that participated had different living arrangements and were neither particularly privileged nor particularly disadvantaged regarding socioeconomic factors. The men had a slightly higher educational level compared to the national average [244] but represent the general population in metropolitan Sweden quite well. Illness severity and comorbidity varied but at the time of the interview most stated that they were feeling okay.

## **4.6 ANALYSES**

In this thesis both statistical and qualitative analytical methods were used. Statistical analyses include logistic regression (study I and III), cox regression (study II), and synergy index (study I and II). Interpretative content analysis was used for the qualitative study (study IV).

### **4.6.1 Statistical analyses**

For study I and III odds ratios (OR), and for study II, Incidence Rate Ratios, presented as Hazard Ratios (HR) with corresponding 95% confidence intervals, calculated through logistic regression models (study I and III) and through Cox regression models (study II), were used to estimate the association between family's (childhood) social position and depression in adolescence. There was no indication of a violation of the proportional hazards assumption in study II. Boys and girls were analysed together as well as separately to explore possible gender differences in all of the studies.

In study I, crude ORs were calculated for each social factor and each of the two outcome variables. Thereafter, adjustments were made for gender, and then mutually for all social factors, to distil the effect of each of them. In study II and III the crude HR were accompanied with adjustments for parental depression, country of birth, and education.

Additive interactions were calculated in study I and III by using the Synergy Index (SI) [245, 246] to calculate if the combined effect of gender and other social factors are larger than the sum of the individual effects. SI calculations require dichotomized independent variables. For this purpose the following variables were dichotomized: parental education (low/medium vs. high), household income (low/medium vs. medium high/high), parental country of birth (born in Sweden or not) and parental occupational class

was divided into manual and non-manual workers (where self-employed were categorized as manual and “others” were excluded).

To be able to compare results from crude models with adjusted models in study I, listwise deletion was applied, resulting in a final analytical sample of 1 880 adolescents. The outcome variable was set to missing when more than one scale item was unanswered or when lacking information on one scale item made the determination of depressive symptoms impossible. Information on a given social factor was treated as missing when information was missing for both parents or for legal guardians. In the case of living arrangements, missing values corresponded to lack of information reported by the adolescent. To examine the impact of the missing data, crude ORs were calculated for each social factor, including all respondents with available information. To make use of as much information as possible in the respective analyses in study II and III, pairwise deletion was applied thus, individuals with missing information on respective exposure variable were excluded only for that particular analysis. Analyses including complete cases showed no significant differences.

An average of 330 adolescents had missing answers on the inventory for depressive symptoms (study I). They were treated as missing if more than one question was unanswered. Furthermore, six cases were reported as missing because they had missing values in such way that it was not possible to know if they did not have depressive symptoms according to DSM-IV criteria (for example, missing on “grumpy”, 0 on “unhappy”, 1 on “no strength”, 0 on “not like yourself”, 0 on “not able to perform”, 0 on “no pleasure”, 0 on “trouble concentrating”, 1 on “sleep problems”, 0 on “eating problems”. This person would fulfil the criteria for not having symptoms if “grumpy” instead of 0 was 1 but because it was not possible to know due to missing data it could not be determined if the person had depression or not.

Missing data for parental education and household income in study II and III was low and differed little between those with and without depression (1.3; 2%). Missing data was higher for parental receipt of unemployment benefit (7.0; 8.6%) and for parental country of origin (14.1; 16.2%).

SAS version 9.2, 9.3 and 9.4 (SAS Institute Inc. Cary, N.C., US.) was used for all analyses for study I-III.

#### **4.6.2 Interpretative content analysis**

To analyze the qualitative data interpretative content analysis was used. It is a method that provide the opportunity to describe and interpret what other people experience, and thereby increase understanding [247]. It can be used for both manifest and latent content where the latter provides the researcher with the possibility to discover the underlying meaning of the text [248]. The method is explorative and empirically grounded with subjective interpretation of the content of the text by systematic classification of coding and identifying themes or patterns. There is no intention of quantification as this would infer a quantitative content analysis.

The transcribed text from the interviews was read through several times by the main and last author and then condensed into meaning units, with maintained core meaning. The process was done inductively but using two domains, chosen a priori based on the aim of the study; experiences of depression and experiences of help-seeking. The meaning units were coded and then put together to form categories, subcategories and preliminary themes. This process included continuously working back and forth between text, codes and categories and was initially done separately by the main and last author, and then compared and discussed together. Finally the results from the analysis were discussed and revised by another co-author and lastly agreed upon, by all co-authors. Categories and themes were allowed to cross through the domains in the final part of the analysis.

**Table 1. Overview of focus, exposures, outcomes and analyses for the studies included in the thesis**

| Article | Exposure  | Outcome  | Design/analysis   | N      |
|---------|---|--|---|--------|
| I       | Parental education, parental occupation, parental employment status, living exclusively with one adult and parental country of birth<br><br>Measured in 1998 when the child was 11-12 | Self-reported depressive symptoms<br>Measured at 17-18 years of age (2004)   | Longitudinal/<br>Logistic regression                              | 2622   |
| II      | Parental education, household income, parental receipt of an unemployment benefit and parental country of birth<br><br>Measured Dec 31 the year the child turned 12 (2000-2006)       | Diagnosed depression<br>Measured at date of first occurrence between 13 and 17 years of age (2001-2011)  | Cohort/<br>Cox regression   | 169262 |
| III     | Parental education, household income, parental receipt of an unemployment benefit and parental country of birth<br><br>Measured Dec 31 the year the child turned 12 (2000-2006)       | Diagnosed depression and psychosocial functioning of 60 or lower (CGAS)<br>Diagnosed comorbid depression (internalizing, externalizing, developmental and other disorders)<br>Diagnoses measured at date of occurrence between 13 and 17 years of age (2001-2011) with comorbidity and CGAS measured $\pm$ 14 days from the depression diagnosis | Cohort/ logistic regression                                       | 6439   |
|         | <b>Focus</b>  | <b>Descriptions</b>  |   |        |
|         | Young men with depression   | Experiences of depression and help-seeking<br><br>Conducted at age 18-32 (2014)  | Qualitative descriptive study/<br>Interpretative content analysis | 13     |

## 4.7 ETHICAL CONSIDERATIONS

The research questions related to the BROMS Cohort Study was approved by the ethical board at Huddinge University Hospital (DNR 10/97) and the Stockholm Regional Ethical Review Board (2013/1896-32). The research questions related to The Stockholm Youth Cohort were approved by the Regional Ethical Review Board in Stockholm, Sweden (DNR 2011/636-32). The Regional Ethical Review Board in Stockholm, Sweden also approved the interview study (DNR 2013/1223-31/1).

Informed consent was obtained from the guardians of all participants in BROMS (study I). The anonymized data that was used for Study II and III came from registers and informed consent could therefore not be obtained.

The information in the letter sent out to the potential participants in the interview study (study IV) was repeated by the main author at the time of the interview and a written informed consent was obtained from all participants. All data were anonymized and kept locked at the Department of Public Health Sciences, Karolinska Institutet. Personal information and contact lists will be erased so no connection with the RCT data base is possible. Our interest for this study was the participants own experiences, no collective truth. We thereby hope to have minimized the risk that participants felt inadequate. No connections between the study and participants' caregivers were present. Participants described potentially delicate issues and reflecting upon the role of the interviewer, Scerri et al. [249] describe that a medically trained person has the possibility to make use of, and take advantage of their patient experience, such as better understanding and being a resource if the participant become sad or upset. However in such a case it is even more important to clarify the role of the researcher in relation to the health professional, because there could be expectations of therapeutic help. The interviewer (main author) in this study has no medical background and participants were aware of this. All participants had been engaged in treatment and were not severely ill. Each interview was ended by asking how the participant felt to catch potential emotional suffering and would have, if necessary, supported the participant in finding help. A positive aspect could be that by conducting this study the stories by young men, a group not so much studied, are highlighted and it might also be positive for them to share their story, thus having someone listening to them. Being part of the study potentially enabled a sense of empowerment and provided opportunity to contribute to improvements. When the interviews were ended, many of the participants said they appreciated having someone listening to their story.



## 5 RESULTS

The prevalence of self-reported depressive symptoms was 11% (symptoms score) and 6% (DSM-IV criteria based) (study I). The incidence of diagnosed depression was 750 cases per 100 000 person years which corresponds to approximately 4% of the adolescents during the defined follow up-period (study II and III). Most adolescents with diagnosed depression were identified in the outpatient clinics and 3.7% of them had been treated in in-patient care. The majority (87%) had low (60 or below) psychosocial function (CGAS) and were diagnosed with comorbid mental disorders (60%) (Study III).

**Table 2. Number of adolescents with depressive disorders and psychiatric comorbidity, and psychosocial function among adolescents with depression**

|   | <b>Total</b> | <b>%</b> | <b>Boys</b> | <b>%</b> | <b>Girls</b> | <b>%</b> |
|---|--------------|----------|-------------|----------|--------------|----------|
| <i>Overall depressive disorders</i>           | 6439         | 3.80     | 1978        | 2.27     | 4461         | 5.41     |
| <i>Specific depressive disorders</i>          |              |          |             |          |              |          |
| Major depressive disorder                     | 1506         | 23.4     | 460         | 23.3     | 1046         | 23.4     |
| Dysthymic disorder                            | 78           | 1.2      | 22          | 1.1      | 56           | 1.3      |
| Unspecified depressive disorders              | 386          | 6.0      | 116         | 5.9      | 270          | 6.1      |
| Diagnostic code 19                            | 4468         | 69.4     | 1381        | 69.8     | 3087         | 69.2     |
| <i>Depression and psychosocial function</i>   |              |          |             |          |              |          |
| CGAS 61-100 (good function)                   | 493          | 12.9     | 134         | 11.4     | 359          | 13.6     |
| CGAS 1-60 (less good function)                | 3316         | 87.1     | 1044        | 88.6     | 2272         | 86.4     |
| <i>Depression and psychiatric comorbidity</i> |              |          |             |          |              |          |
| Internalizing disorders                       | 1438         | 22.3     | 350         | 17.7     | 1102         | 24.7     |
| Externalizing disorders                       | 373          | 5.8      | 140         | 7.1      | 227          | 5.1      |
| Developmental disorders                       | 890          | 13.8     | 333         | 16.8     | 562          | 12.6     |
| Other disorders                               | 1031         | 16.0     | 248         | 12.5     | 784          | 17.6     |

### 5.1 SOCIAL DIFFERENCES IN DEPRESSION

An approximately doubled risk of self-reported depressive symptoms was found among adolescents whose parents had low education, were unskilled workers, intermediate non-manual workers or self-employed (study I). For those adolescents exclusively living with one adult the risk almost tripled, whereas having foreign-born parents was not associated with self-reported depressive symptoms (Table 3).

The risk of diagnosed depression was slightly higher for adolescents with parents with low and medium education compared to high, and for adolescents with lower, albeit not the lowest household income compared to those with the highest (study II). Having parents who received unemployment benefits was associated with a higher risk of diagnosed depression. Adolescents with parents born outside the Nordic countries had a lower risk, whereas those with parents born in the Nordic countries had a minor risk increase, compared to those with Swedish-born parents. Overall the social differences in diagnosed depression were modest.

**Table 3. Social differences in self-reported depressive symptoms and in clinical diagnosis of depression**

|  | <b>Study I</b><br>Depressive symptoms<br>Crude OR (95% CI)<br>n=1880 | <b>Study II</b><br>Diagnosed depression<br>Crude HR (95% CI)<br>n=169262 |
|--|--|--|
| <i><b>Social factors</b></i>                 |  |  |
| Parents born outside Sweden                  | 1.3 (0.8-2.0)  | 0.7 (0.6-0.7)  |
| Medium parental education                    | 1.0 (0.7-1.4)  | 1.1 (1.1-1.2)  |
| Low parental education                       | 1.8 (1.1-3.1)  | 1.1 (1.0-1.2)  |
| Parents with intermediate non-manual workers | 1.8 (1.0-3.0)  | *  |
| Parents with lower non-manual workers        | 1.7 (0.9-3.1)  | *  |
| Skilled worker parents                       | 1.4 (0.7-2.7)  | *  |
| Unskilled worker parents                     | 2.1 (1.2-3.7)  | *  |
| Self-employed parents                        | 2.2 (1.2-3.7)  | *  |
| Medium high household income                 | *  | 1.2 (1.1-1.2)  |
| Medium household income                      | *  | 1.3 (1.2-1.4)  |
| Medium low household income                  | *  | 1.2 (1.1-1.3)  |
| Low household income                         | *  | 1.0 (0.9-1.1)  |
| Living exclusively with one adult            | 2.8 (1.1-7.1)  | *  |
| Unemployed parents/receipt of benefit        | 2.6 (1.1-6.1)  | 1.3 (1.2-1.4)  |

\*Not included

Among adolescents with depression, comorbid internalizing disorders was most prevalent, followed by comorbid “other disorders”. Comorbid developmental disorders were also common but fewer had comorbid externalizing disorders. Girls had slightly higher percentage of comorbid internalizing and comorbid “other” disorders whereas boys had slightly higher percentage of externalizing and developmental disorders. Descriptive statistics of psychiatric comorbidity in relation to social position is found in Table 4.

**Table 4. Descriptive statistics of adolescents with comorbid depression, by gender**

|   | Internalizing disorders % |            | Externalizing disorders % |            | Developmental disorders % |            | Other disorders % |            |
|---|---------------------------|------------|---------------------------|------------|---------------------------|------------|-------------------|------------|
|   | All                       | Boys/Girls | All                       | Boys/Girls | All                       | Boys/girls | All               | Boys/girls |
| <b>Parental education</b>                       |                           |            |                           |            |                           |            |                   |            |
| High  | 46.2                      | 48.4/45.4  | 37.1                      | 36.0/37.8  | 45.0                      | 49.9/42.2  | 49.0              | 48.6/49.2  |
| Medium  | 41.4                      | 36.5/42.9  | 45.2                      | 43.9/46.0  | 42.4                      | 38.1/45.1  | 39.8              | 38.5/40.2  |
| Low   | 9.9                       | 11.9/9.3   | 15.0                      | 16.7/14.0  | 10.4                      | 9.4/11.0   | 9.1               | 11.3/8.4   |
| Missing   | 2.6                       | 3.2/2.4    | 2.8                       | 3.6/2.3    | 2.1                       | 2.7/1.8    | 2.1               | 1.6/2.2    |
| <b>Household income</b>                         |                           |            |                           |            |                           |            |                   |            |
| High  | 15.9                      | 15.7/16.0  | 12.2                      | 13.0/11.7  | 15.2                      | 15.7/15.0  | 16.7              | 11.3/18.4  |
| Medium high                                     | 20.2                      | 20.3/20.2  | 18.6                      | 16.6/19.8  | 21.1                      | 21.5/20.9  | 20.6              | 23.9/19.5  |
| Medium  | 20.9                      | 20.0/21.2  | 21.6                      | 18.7/23.4  | 21.8                      | 26.0/19.3  | 21.0              | 24.3/19.9  |
| Medium low                                      | 23.6                      | 23.2/23.7  | 24.4                      | 24.5/24.3  | 25.1                      | 19.9/28.1  | 23.1              | 21.1/23.8  |
| Low   | 17.4                      | 18.8/16.9  | 21.3                      | 25.2/18.9  | 15.4                      | 15.4/15.3  | 17.0              | 18.2/15.6  |
| Missing   | 2.1                       | 2.0/2.1    | 1.9                       | 2.2/1.8    | 1.5                       | 1.5/1.4    | 1.7               | 1.2/1.8    |
| <b>Parental country of origin</b>               |                           |            |                           |            |                           |            |                   |            |
| Sweden  | 64.4                      | 60.9/65.5  | 60.7                      | 57.6/62.6  | 65.4                      | 69.5/62.9  | 65.9              | 60.7/67.5  |
| Nordic  | 4.0                       | 3.5/4.2    | 3.1                       | 2.2/3.6    | 4.6                       | 1.8/6.3    | 3.3               | 4.9/2.9    |
| Outside Nordic                                  | 14.2                      | 19.1/12.7  | 16.9                      | 21.6/14.0  | 14.2                      | 13.6/14.6  | 14.4              | 18.2/13.2  |
| Missing   | 17.4                      | 16.5/17.6  | 19.4                      | 18.7/19.8  | 15.8                      | 15.1/16.2  | 16.4              | 16.2/16.4  |
| <b>Parental receipt of unemployment benefit</b> |                           |            |                           |            |                           |            |                   |            |
| No benefit                                      | 85.2                      | 85.8/85.0  | 86.2                      | 84.9/86.9  | 87.6                      | 86.7/88.1  | 86.2              | 81.4/87.7  |
| Benefit   | 6.7                       | 6.7/6.6    | 8.3                       | 10.1/5.9   | 5.3                       | 5.4/5.2    | 6.4               | 10.5/5.1   |
| Missing   | 8.2                       | 7.5/8.4    | 5.5                       | 5.0/7.2    | 7.1                       | 7.9/6.7    | 7.5               | 8.1/7.2    |

There was in general an increased risk of a more burdensome depression, i.e. worse psychosocial functioning and psychiatric comorbidity, for those with a lower familial social position. Those with the lowest parental education were 1.5 times more likely to have depression with low psychosocial functioning compared to those with high parental education. This was noted also for lower, albeit not the lowest, household income.

For comorbid depression an increased risk was found in relation to parental education and household income. Those with the lowest parental education were 1.3 times more likely to have comorbid internalizing disorders, and those with lower household income were 1.3-1.4 times more likely. For comorbid externalizing disorders, a risk increase among those with the lowest parental education or the lowest household income was found as they were 2.4-2.5 times more likely to have comorbid externalizing disorders. Furthermore, those with parents born outside the Nordic countries had an odds ratio of 1.7 compared to those born in Sweden. Minor social differences were noted for comorbid developmental and comorbid “other” disorders but with unprecise estimates. However, those with parents born in the Nordic countries were 1.6 times more likely to have comorbid developmental disorders compared to those with parents born in Sweden and those with parents born outside the Nordic countries had an increased risk of comorbid “other” disorders. No prominent social differences related to indicators of education and income could be detected for comorbid developmental disorders (OR=1.1, CI=0.9-1.3). Neither was it possible to detect any differences related to receipt of an unemployment benefit for any of the outcomes of psychiatric comorbidity.

## **5.2 DEPRESSION AND GENDER**

The mean age for onset of diagnosed depression was similar between boys and girls (15 years). Girls had more than double the risk of diagnosed depression and threefold the risk of self-reported depressive symptoms, compared to boys.

There were negligible differences between boys and girls in low social position and diagnosed depression. Boys were slightly more vulnerable to low social position as indicated by a parental unemployment benefit and household income and both boys and girls with parents born outside the Nordic countries were found to have a lower risk of depression. Girls were however found to be more vulnerable to low parental education irrespective of diagnosed or self-reported depression (measured by synergy index). An interaction effect was also seen for self-reported depression for girls living exclusively with one adult (study I). Gender differences related to social position and self-reported depressive symptoms could not be fully examined due to insufficient statistical power (study I).

Boys had a higher risk of a low psychosocial functioning (more impaired according to CGAS) than girls. An increased risk of low psychosocial function among adolescents with depression was however found for girls with parents with lower education, but not for boys.

Risk patterns in psychiatric comorbidity differed by gender to some extent. The risk of comorbid externalizing disorders was increased for both boys and girls with parents with low education. Boys had further an increased risk of comorbid externalizing disorders if having a low household income whereas girls with medium low household income had an increased risk of comorbid developmental disorders. More than double the risk was also found for comorbid externalizing disorders among boys with parents born outside the Nordic countries. Boys with low parental education or with parents born outside the Nordic countries had also an increased risk of comorbid internalizing disorders whereas girls with low parental education/born outside the Nordic countries, compared to high/born in Sweden, had not. Boys with low or medium low household also seemed to have a higher risk of comorbid internalizing disorders, however CI:s were overlapping.

### **5.2.1 Depression and masculinity**

Gender socialization was found to play a role in how young men learn to experience and express depression. The men expressed a need to relate to traditional masculine ideals, such as being strong and not asking for help, but most of them stated that they did not adhere to it themselves.

The overarching theme in study IV was named “it’s interfering with life, identity and gendered ideas”. It captures the magnitude of the difficulties that the men experienced. The men described an illness journey of struggle and negotiations. They experienced that the depression and help-seeking for it interfered with everyday life, identity and gendered ideas.

*“But my own view, I’ve had to adjust it [his identity] very much to my depression. Before that it was one of those typical, very straight images based on this stereotypical image of what a man is, but I’ve had to build an image, afterwards, that fits how I look at masculinity and it includes those features like being entitled to feel weak and vulnerable”. (Man, age 30)*

Mental health literacy and a negotiation between treatment and managing on your own built up a category of struggling with mental health services and medicines.

*“...because men are not trained, most men are not trained to feel, it is simply not part of the male role and it is not something you learn as a child. You just do not feel those first symptoms”. (Man, age 24)*

Negotiating ideal masculinity to accept and express symptoms as well as to get accepted by others built up a category of negotiating norms of ideal masculinity. Struggling with “business as usual” and struggling with angst and other emotions, built up a category of struggling with everyday life.

Getting a diagnosis opened up for receiving help but before that it was much of a struggle with the ability, willingness and possibility to receive treatment. This negotiation was affected by ideal masculinity norms to keep feelings to themselves. The need to negotiate

ideal masculinity on one's own as well as with family and friends fuelled the struggle with everyday life and with making depression a part of the men's identity.

Overall, ideal masculinity was perceived by the men to aggravate the acceptance of depression and willingness to seek help. Facing traditional gendered ideas in school and/or in health care further troubled the acceptance and complicated treatment. Thus, even if symptoms were accepted and expressed and help was sought, the process was delayed because of existence of perceived gender ideals.

## 6 DISCUSSION

### 6.1 SUMMARY OF MAIN FINDINGS

The results from this thesis expand the knowledge about social and gender differences in depression by focusing on younger age groups in Sweden, a welfare state typical of the Nordic countries, where social differences are likely to be less pronounced and gender equality relatively high compared to many other countries.

The findings from study I-III reveal that Swedish adolescents from socioeconomically disadvantaged families, measured in several ways, are at a higher risk of depression, both self-reported symptoms and diagnosed, compared to those from more advantaged backgrounds. Among adolescents with depression the risk was increased for a more burdensome depression (low psychosocial function and psychiatric comorbidity). The social differences were more modest in diagnosed depression and greater in more burdensome depression, compared to self-reported depressive symptoms. Furthermore, the different indicators for social position partly reveal different results. Among adolescents with foreign-born parents there was a lower risk of diagnosed depression but when adolescents reported their depressive symptoms themselves no increased risk could be found compared to having Swedish born parents. Among adolescents with depression an increased risk of low psychosocial functioning among those with low parental education was found and also of comorbid externalizing disorders among those with foreign-born parents.

Concerning gender differences, girls were found to have a higher risk of both self-reported depressive symptoms and diagnosed depression compared to boys. The risk of depressive symptoms was prominent among girls living with one parent only and for girls that have parents with low education, but not among boys. Gender differences were found to be moderate in the risk of diagnosed depression based on social position. Among adolescents with diagnosed depression, girls with parents with lower education had however slightly more elevated risks of low psychosocial function than boys. Concerning gender differences related to psychiatric comorbidity boys and girls had different risk profiles to some extent. Boys with parents with low education or low household income had an increased risk of comorbid internalizing disorders but this was not evident for girls to the same extent. Boys had an increased risk of comorbid internalizing disorders if they had parents born outside the Nordic countries but girls did not. Both boys and girls with parents having low education had an increased risk of comorbid externalizing disorders.

The findings from study IV show that depression interferes with many aspects in life. The men's illness journey included dwellings on identity and gender norms. Taken together this delayed their process of accepting the disease and to seek help for it.

## **6.2 DEPRESSION FREQUENCY**

In study I, 11% (symptoms score) and 6% (DSM-IV criteria based) had depressive symptoms during the last month. In study II, 3.8% received a diagnosis of depression during the five year follow up. This is overall in line with Finnish studies, one where 7% were found to have a diagnosed mood disorder during follow up from birth to 21 years of age [35]. In another, 9% of the women and, 4% of the men (17-19 years old) had depression, with an overall 12-month prevalence of 2.6 % at the age of 17 [132]. Numbers related to diagnosed depression would however not be the true rates of depression per se but rather the percentage of diagnoses, partly because many adolescent do not seek care. The prevalence has nevertheless been found to vary extensively between European countries [53]. This can possibly be due to differences in measurement and differences in mental health care facilities, such as variations in user fee levels. It can also reflect differences in perceived stigma or cultural differences. The variation in occurrence can also reflect true differences. However many countries do not have any data on the prevalence [53]. In general it seems that rates are higher in high-income countries than in low-middle income countries [53].

Results from study I and II in this thesis support previous research that girls have a higher risk of depressive symptoms and diagnosed depression, compared to boys [3, 32, 132, 133]. The results further support findings that depression often comes with psychiatric comorbidity [3, 93].

## **6.3 SOCIAL DIFFERENCES IN DEPRESSION**

In line with the proposal from Miech et al. [34] we explored social differences related to depression specifically and not to an overall, more omnibus, measure of “psychological distress”. This is important as they found that each different mental disorder had a different relation to socioeconomic status. It is also important to investigate social differences in different countries as it previously has been found that context and ethnicity can play a role [206, 250]. In the current thesis an increased risk was found for depression for those adolescents with lower social position of the family, whereas in for example some Asian countries, the opposite relation between social position and depression has been noted [53, 250].

Findings are in line with several other studies that show an increased risk of depressive symptoms in adolescence among lower status groups [24, 29, 31, 36, 37, 40, 251, 252] and also that such an increased risk is found in diagnosed depression or mood disorders [34, 39, 132, 133]. Some contradictions, between previous results and those in the current thesis, related to the different indicators used for social position are nevertheless evident. Several previous studies show an increased risk of depressive symptoms for one indicator of social position but not another [27, 32-34]. The findings in this thesis show that there is an increased risk of depression, diagnosed and self-reported, among adolescents with most of the indicators used. Low parental education increased the risk of both self-reported and diagnosed depression. For diagnosed depression there was also an increased risk in relation

to a lower household income and for self-reported depressive symptoms an increased risk in relation to lower parental occupational class was found. There was also an increased risk for adolescents having parental unemployment/ unemployment benefit which support previous findings [141, 253]. Unemployment was however not found to be a risk factor for low psychosocial functioning or psychiatric comorbidity among adolescents with depression. This can possibly reflect that there are other mediation processes among those who have more severe depression and have sought help for it.

Some differences in the magnitude of social differences in depression in adolescence can be noted. The magnitude of the social differences in diagnosed depression was found to be modest. The differences were lower in comparison to self-reported symptoms, and were lower than reported by similar studies conducted in the USA and Finland [39, 132]. The reason for the modest social differences found for diagnosed depression can possibly be related to the period of adolescence as proposed by the theory of social equalization in adolescence [102]. However this does not explain differences between countries or why there are larger social differences in self-reported depressive symptoms. Perhaps the latter instead can be explained by socially patterned care-seeking behavior. Those with lower social position and those with foreign-born parents may seek care to a lower extent. The combined results from study I and II are in line with this. As one example, there was no increased risk of self-reported depressive symptoms among adolescents with foreign-born parents but there was a lower risk of diagnosed depression among those with foreign-born parents, compared to those with Swedish-born parents. Further, some other studies confirm that there are no differences between foreign-born and native born in self-reported depressive symptoms [13]. However the direction of socially patterned care-seeking is not clear. As an example, Finnish studies suggest that those better off seek care to a higher extent [35, 204] but a Swedish study show the opposite [15]. Furthermore, adolescents with parents born in middle or low-income countries have been found to use psychiatric care to a lesser extent than native-born Swedes [205].

Another, somewhat more intriguing and possibly more unlikely explanation is that clinicians to a lesser extent detect depression among those born outside Sweden, perhaps because of differences in how depression is expressed and articulated in different cultures [154]. The reason to believe so can be strengthened by the fact that those with parents born in the Nordic countries had a slightly increased risk and culture should not vary much between the Nordic countries. The health literacy for the Swedish context is probably also higher among those from Nordic countries than among those born outside the Nordic countries. Clinicians can possibly also to a lesser extent detect depression among those of lower social position as health literacy can be lower in groups of lower social position. Also, and as described previously, having a depression in deprived areas can to a higher extent be considered a normal response to troublesome life events and environment but in affluent areas depression can to a higher extent be seen as a treatable disease [47]. Differences can also apply to gender [166].



It can otherwise be argued that larger social differences, as found for self-reported depressive symptoms, is due to relative social differences, as an overall low prevalence can increase relative differences. This is supported by some previous research where it was noted that Sweden have small absolute differences in several health outcomes but with relative inequalities being larger than average [254, 255].

Parental occupational class showed a more evident association with depressive symptoms than parental education. There was an increased risk of diagnosed depression for those with lower education and lower household income, however not for those with the lowest income. Taken together with previous research where different indicators have been used for social position and with somewhat different results, or magnitude in differences, a complex picture of the association is revealed. This reminds us of the different dimensions described by different indicators used to define social differences [105]. The studies in this thesis support what Geyer et al. [105] imply - that the indicators are interconnected but should not be used interchangeably. Geyer further reasons that using these dimensions interchangeably can lead to ignorance of their independent contributions to health. We should also be aware of that different outcome measures for depression can account for differences in results in different studies.

Most previous research favors the causation hypothesis in the association between social position and poor mental health [97] and so does the findings from study I and II. Other research implies however that these mechanisms can also vary depending on the indicator used for social position. As one example, Elovainio et al. [27] found support for social causation when SES was measured with parental occupational level but that the hypothesis of social selection was more in play (among adults) when income was used as an indicator of childhood SES. The latter finding can possibly be due to income decreasing when having an ill adolescent. The same reasoning can apply to parental employment and living with one adult only, while education would not be sensitive in the same way since the level of education received cannot decrease.

### **6.3.1 Social differences in depression in different countries**

It has been noted that social inequalities in self-perceived health are smaller in countries with a social-democratic tradition [37] however others [25] find no obvious pattern between socioeconomic status and mental health in different European countries (not including Sweden). Less affluent countries, as well as countries with greater income inequality and weaker redistributive policies have also been found to have a higher prevalence of depressive symptoms [247, 248].

Several European studies do not find a relationship between financial difficulties in childhood and depression among adolescents [27, 32, 33] but many American studies do [24, 29, 31, 256, 257]. These differences between countries can be reflected by different financial support systems and welfare state programs. In the current thesis a modest risk increase for diagnosed depression was found for a lower household income and no

increased risk for those with the very lowest income. These results are still in line with a Finnish study where it was found that low parental income increases the risk of depression, even if they found a more elevated risk [132]. Both relative and absolute family affluence can bring about social differences. Even if mental health care services are free of charge in the setting of the current thesis, a higher income can provide opportunities for more, or other kinds of care, such as private counselling. A higher income can also provide better opportunities for recreational activities. Other measures of a worse economic situation showed a stronger relationship with depression but they can on the other hand also capture psychosocial factors beyond economic factors. Those living exclusively with one adult and those with unemployed parents were found to have almost tripled the risk of depressive symptoms and those with unemployed parents also had a notable increased risk of diagnosed depression.

Having parents with lower education was found to increase the risk of depression in adolescence. Previous research seem more conclusive concerning the role of education than income as most studies, both from Europe and the USA [25, 26, 29, 31, 33, 35, 256], are in line with the findings that low parental education increases the risk of depression. The study by McLaughlin et al. [39], from the USA, however contradicts this finding as well as one Hungarian study and [32] and a study based on data from UK and the Netherlands [30].

Slightly fewer studies seem to have been conducted using occupation as an indicator of social position in relation to depression in adolescence. In this thesis it was found that there is an increased risk of self-reported depressive symptoms for groups with lower social class. These results are confirmed by both European studies, from Finland and Spain [27, 33] and studies from the USA [25, 28], but there are also one Hungarian study [32] and studies from the USA [39, 40] that do not find an increased risk of depression for adolescent with lower parental social class. These differences can for example imply different work-conditions in different countries. The impact of having a double burden of paid job and domestic unpaid job can also differ between different countries as well as the impact that can have on the children.

### **6.3.2 Social differences in psychosocial functioning and psychiatric comorbidity among adolescents with depression**

It was found that adolescents with diagnosed depression and a low social position of the family have a higher risk of a more burdensome depression, i.e. worse psychosocial functioning and psychiatric comorbidity. Previous research about social differences in psychosocial functioning and psychiatric comorbidity among adolescents with depression is sparse. The results from study III are however in line with a study that found children with parents with a receipt of a welfare benefit to more often show psychiatric comorbidity [258]. Those with comorbid depression were furthermore found to have worse psychosocial functioning than those with depression only, which is in line with the study by Masi et al. [259]. If lower psychosocial functioning among adolescents with depression is thought of as a more severe depression the results are partly contradicted by a previous study that indicate

that social differences are not more prominent in severe depression compared to mild/moderate depression [93].

The potential explanation to the increased risk of a more burdensome depression among adolescents with lower familial social position include mechanisms such as delayed care-seeking, but also that groups with lower social position can have a more disadvantaged home environment. Experience of violence and conflict in the family has for example been found to increase the risk of depression among adolescents living in disadvantaged contexts [260]. Families with much conflicts and aggression with unsupportive and neglectful relationships can generate vulnerabilities and/or interact with genetically based vulnerabilities in offspring. This in turn can create disruptions in psychosocial functioning and in biological stress systems as well as in poor health behaviors, such as substance abuse. With this comes an increased risk of mental disorders [261] and possibly also of lower psychosocial functioning and psychiatric comorbidity.

#### **6.4 GENDER, MASCULINITY AND DEPRESSION**

Gender aspects were investigated in all studies in this thesis because much research highlights the differences between boys and girls and men and women in depression rates [3, 32, 132, 133] as well as gender differences in experiences of the disorder [168-170, 172]. Research focusing on young men's experiences and on the interplay with gender and social factors, especially among adolescents and in diagnosed depression in Sweden, is however limited.

Girls were found to have an increased risk of depression, both when measured as self-reported symptoms and by diagnosis. The aforementioned theoretical model proposed by Cyranowski et al. [171] suggests that girls are more vulnerable to depression than boys because of the combination of a more affiliative style in social relations and transition difficulties, which are triggered by negative life events.

Whether there are gender-specific risks in poor mental health overall in relation to social position is inconclusive in previous studies [37]. In the current thesis, boys and girls with low household income, low parental education and parental receipt of an unemployment benefit were found to have an increased risk of diagnosed depression. Gender stratified associations did not show any noticeable differences though there was an indication of an even more increased risk of depression among boys with lower household income and parental receipt of unemployment benefit than for girls as well as for girls with lower parental education compared to boys. Furthermore, a synergy effect was found for girls having parents with a low education, both in self-reported depressive symptoms and in diagnosed depression. In relation to depressive symptoms this was also found for girls living exclusively with one adult. The results from study II are in line with the findings from a Finnish study where it was found that gender differences in diagnosed depression (in late adolescence) in relation to parental education and income are small [132].

Several studies have found that boys and girls have different patterns in psychiatric comorbidity [92, 93, 258, 262]. Emotional and behavioral problems are often divided into internalizing and externalizing difficulties [69]. A common notion is that men more often have externalizing difficulties and women more often internalizing difficulties. This has also been found among men and women with depression [263] and was confirmed in study III, where girls had a higher risk of comorbid internalizing disorders and boys had an increased risk of comorbid externalizing and comorbid developmental disorders. Some studies do however not report any major gender differences [93]. Boys were also found to have a higher risk of a low psychosocial functioning which confirms findings from a previous study [264]. However in relation to social position, girls with parents with lower education had an increased risk of low psychosocial functioning, but not boys. Boys lower functioning can possibly represent externalizing symptoms to a higher extent - symptoms that more likely give rise to lower psychosocial functioning than for example internalizing disorders. It could also reveal that girls get more or, more suitable support, than boys.

A considerable risk increase was found for comorbid externalizing disorders for adolescents with depression among both boys and girls with low social position, with increased risks that were higher for boys. A possible explanation to the somewhat larger magnitude of social differences among boys is that boys' mental health problems can be detected later and possibly they also experience greater mental health problems than girls at the time for coming to CAMHS. This is supported by a study that found that adult men with lower social position tend to identify sensations as symptoms of illness, later [265]. Parents with lower education can possibly also have a lower tendency to detect early signs of psychiatric disorders and possibly they can also have lower educational expectations in their child. This can interact with the fact that girls can have a better ability to recognize depression, than boys [266]. Girls are also more likely to seek help from a variety of sources [267] which can increase the understanding of multiple psychiatric problems, especially when already facing the burden of depression.

Depression was found to interfere with many aspects in life. The men's illness journey included dwellings on identity and gender norms. Taken together this delayed their process of accepting the disease and to seek help for it. This is partly in line with a systematic review and metasynthesis that concludes that traditional masculinity norms can hinder, but also facilitate men's coping with depression [184].

## **6.5 EXPLANATIONS TO SOCIAL AND GENDER DIFFERENCES IN DEPRESSION**

The increased risk of depression among adolescents with low social position found in study I-III can be a result of several different mechanisms which has also been indicated by others [98]. In the coming section some of the aforementioned explanations will be discussed in greater detail as well as some additional explanations will be discussed.

### **6.5.1 Differential exposure and vulnerability**

It has been proposed that disadvantage from low socioeconomic status leads to differential susceptibilities of mental health [268]. Several psychosocial risk factors have been found to increase the risk of depression. These include the aforementioned factors and are for example conditions such as large family, broken home and serious conflicts during upbringing, peer status and bullying in school, abuse and stress. Exposure to stress can for example cause psychological and biological changes which increase the risk of psychiatric disorders [269] by affecting the development of neuroregulatory centers of the brain that manage emotion, attention and social functioning [270].

As Diderichsen mention, [99] the effect of a particular exposure depends on other factors. The effect of a risk factor can become larger for those with a lower social position than for those with a higher. Groups with higher social position can for example have higher mental health literacy and thereby for example know where to turn for help to handle stress or seek care. They can also have better opportunities for social support. For example, Swedish adolescents have been found to use their parents for emotional support to a higher extent if their parents have joint custody than those living with a single parent [271].

Differential exposure also implies that the different risk exposure might accumulate over life. Low social position in early life can influence depression later in life through sensitive/critical periods of development (latency model) or, low social position in early life is linked to depression through intermediate risk factors/pathways (chains of risk model) [195]. It has for example been found that Swedish adolescents living in households with more limited financial resources have an increased risk of being bullied [272].

Some previous research point to the importance of supportive parenting and that lack of parental care in families increases the risk for children to develop problems [273]. Factors such as good schooling, safe environments and healthy relationships with other adults, have also been found to be important [274] and can differentiate between different social groups. This can be related to study IV where difficult childhood circumstances were described to contribute to depression, such as being raised by single and/or alcoholic parents. It has also been noted that adolescents with comorbid depression and substance abuse have less supportive relationships with family members compared to the groups of depression only and substance abuse only [275] which possibly can mediate the association found in study III were those with a lower social position of the family had an increased risk of comorbid externalizing disorders.

### **6.5.2 Help-seeking and literacy**

Differences in help-seeking can possibly explain some social differences and also some gender differences. Several studies have found that men and woman are differently treated for the same diseases although medically unmotivated [276]. It has however been argued that care-seeking can be less socially skewed when mental illness is more severe. This was for

example found among Swedish adolescents, where social differences in self-harm diminished when looking at inpatient cases solely [277].

As outlined in the background section, help-seeking is influenced by several factors. One issue is masculine ideals and cultural constructs. Seidler et al. [208] have in a recent systematic review concluded that conformity to traditional norms of masculinity have a problematic impact on men's help-seeking for depression. Others have found that this is not necessarily the case. Not all men are reluctant to help-seeking [21] and some men even challenge the hegemonic masculinity and explore their emotional vulnerability with professional help [178]. In study IV it was however found that the first step for seeking care requires more comprehensive symptoms which also has been found by others [278]. This is likely to be the case for women too, but maybe to a lower extent.

Help-seeking can also be influenced by health literacy and stigma. These are aspects that can be influenced by both social position and gender. Having higher education can indicate better mental health literacy, such as appraisal of health information and ability to navigate in the health care system and manage disease [279, 280]. People with lower social position have been found to know less about depression symptoms [282] and girls have been found to have a better ability than boys to recognize depression [266]. In study IV it was further revealed that it can be difficult for men to recognize symptoms because men simply are not trained in this. The above mentioned reasoning can also explain a more delayed care-seeking which in turn can partly explain both the increased risk of a more burdensome depression among adolescents with lower familial social position, and the larger magnitude of social differences found for comorbid externalizing disorders compared to comorbid internalizing disorders. Explanations to the increased risk of diagnosed depression but not self-reported depressive symptoms between foreign-born and Swedish-born found in study I and II can also comprise literacy skills, as health literacy can be lower among foreign-born [157, 281, 282].

Even if mental health literacy is high stigma can hinder care-seeking [20]. This was indicated also in study IV. Greater educational attainment can however be associated with reduced stigma towards individuals with mental illness [283].

Self-efficacy (believing in your ability to handle strains and reach your goals) [284] can be yet another factor that matters in the development of depression and can possibly be related to health literacy. Furthermore, Maciejewski et al. [285] talk about a viscous circle, a person with low self-efficacy experiences a negative life event leading to depression which makes the person more vulnerable to upcoming negative life events and thereby lower self-efficacy. This could lead to yet another depression and so on. Galambos et al. [286] found however that self-esteem increases in the critical years of emerging adulthood.

### 6.5.3 Further explanations to gender differences

Reasons to gender differences in depression are in general not fully understood but some explanations that have been given include genetics, hormones, psychological or social reasons or a measurement artifact [287, 288].

It is possible that the mechanisms related to differential exposure, vulnerability and consequences work differently for boys and girls. It has previously been discussed that the negative effects of low social position affect girls to a higher extent than boys [188]. Girls can for example be more vulnerable to stressors than boys, stressors that are more common in environments of lower social position. Formoso, Gonzales and Aiken [289] suggested further that adequate parental skills are especially important for girls in relation to internalizing problems. Adequate parental skills have further been found to be less common in socially disadvantaged families [290]. Protective factors such as good schooling, safe environments and healthy relationships with other adults have however been found to be equally important for boys as for girls [274].

Some research also proposes that causes to gender differences can differ for different levels of depression severity [40]. The reasons for this have been discussed to include that causes for severe depression for example can be sexual abuse. It is more likely that this gives rise to a more severe depression and it is also something that is more common among girls than boys [291, 292]. In mild depression causes could be related to low self-esteem which might give rise to a less severe depression and is more common among girls [293].

Gender norms are also likely to explain some of the differences which are supported by study IV. Gendered norms are held by many different actors in society, such as patients, researchers and clinicians. As an example it has been found that women and men have been differently treated for the same diseases even if medically unmotivated [276]. Another possibility is that girls more easily express their symptoms. In study IV it was found that men succumbed to traditional masculine norms, and did not initially, express their symptoms nor seek care.

Previous research find mixed support for “double jeopardy” [185] of gender and social position and depression. In study I and II it was however found that adolescent girls with low parental education and in study I also girls living exclusively with one adult are especially vulnerable. The overall inconclusive results [37, 132] concerning gender differences in depression related to social position can partly reflect the issue outlined before – that different mental disorders have a different relation to social position [34]. It can also partly be explained by differences in how boys and girls express depressive symptoms [48]. Findings from study IV do however not support this hypothesis as they described their symptoms much in line with DSM-IV and thus not very different from women [166]. This can on the other hand be because of these men’s acquaintance with the mental health care system.

## 6.6 METHODOLOGICAL CONSIDERATIONS

In this thesis it was possible to study social and gender differences in both self-reported depression and diagnosed depression as well as lived experiences of depression. All together this provides a comprehensive picture of social and gender differences in depression. The materials used in study I-III cover Stockholm County. Due to some possible differences of care utilities within Sweden, generalizability may be limited to some extent.

The BROMS-cohort provides high-quality longitudinal data during the whole course of adolescence. It had parental report of SES and adolescent report on depression which is relatively rare. Depressive symptoms were self-reported, therefore less affected by care-seeking behavior. This is important since the propensity to seek care may itself be socially determined [15]. In addition, several different indicators of SES and more refined measures (not only dichotomized exposures) as well as other social factors were available, which made it possible to study the effect of social factors on depressive symptoms in greater detail than previously done. Another important strength of the study is the prospective design, which reduced the likelihood of reversed causality, since parental SES and other social factors were assessed before the outcome. Many previous studies have been cross-sectional [26, 29, 31, 33]. The inventory used to assess depressive symptoms broadly corresponds to DSM-IV criteria of depression [84]. Cronbach's  $\alpha$  [238] also showed good internal consistency [294] among the items within the inventory.

Study II and III have the strength of being population-based cohort studies including all children 13-17 residing in Stockholm County. The closed cohort design meant that new cases were not allowed which might have excluded foreign born to a higher extent than Swedish born. However, the use of register-based material encompassing a large sample of adolescents with both in-and outpatient data, is a great strength. Including both in and outpatient data has been found to be important to catch reliable rates of mental diseases [295]. The use of register based material decreased problems with self-reported data (e.g. recall, dishonesty, inability to be accurate, literacy, differences in how people rate, response bias, spurious responses). Swedish official registers have overall a high standard [296] though some concerns have been raised [297]. The validity for the national patient register is reasonably high concerning several mental disorders [298, 299]. A validation study in Sweden among adults showed 88% agreement when depression diagnosis from out-patient care was compared to a clinical diagnosis from court-ordered inpatient evaluations [300]. The material for study II and III further enabled detailed analyses with a gender focus as well as possibilities to explore associations using several measures of social position, interactions and psychiatric comorbidity.

An overall strength with study II and III is that diagnoses from primary care are included which is in contrast to many other studies that use clinical interviews performed by lay people. The studies are furthermore conducted in a country where mental health services are



available without a cost, thus allowing the study of social differences independently from parents' possibility to afford mental health care.

Study IV describe the experiences of one particular group but had the strength of revealing experiences of depression and help-seeking among young men, a group not so easy to get hold of. It is a descriptive study but nevertheless a study in which experiences of depression in relation to the concept of masculinity are explored. This is especially interesting to investigate in metropolitan areas in Sweden, where gender equality is relatively high compared to many other countries.

The studies in this thesis have in general a strong design as mentioned above as well as the possibility to control for several confounding factors. Nevertheless there are some limitations. In the following sections some of the more important limitations, related to misclassification and confounding, are discussed.

## **6.6.1 Misclassification**

### *6.6.1.1 Misclassification of depression*

Some adolescents may have been classified as not having depression or depressive symptoms, even though they have a depression. Misclassification of self-reported symptoms can have occurred because adolescents can lack in their ability to recognize symptoms which possibly can differ between social groups, and between boys and girls [48]. It is possible that self-reporting of depression are affected by what Johansson [301] mention as “the modesty of the poor as well as the dissatisfaction of the rich”. It means that those with higher SES possibly expect better health and thereby report symptoms at a lower threshold than those with lower SES. This possible misclassification can attenuate the social differences. However, differential reporting according to parental SES has previously been found to be a minor concern [302].

Misclassification of diagnosed depression from the care giver can have occurred because of reluctance in diagnosing children [303], as well as the possibility of misdiagnosis, or that some do not seek care [16]. It cannot be ruled out that the same health care provider diagnoses differently depending on the adolescent social characteristics. It has further been found that clinicians can find it difficult to use symptoms based criteria because people can express symptoms differently depending on for example, gender, social position or origin [166]. The incidence presented may therefore underestimate the true levels of depression in the population.

The more important limitation in study II is that social differences in care-seeking can be present, which introduce bias [29]. The direction of the bias is however not clear. Finnish studies [35, 204] suggest that children of parents with higher socioeconomic position may have better access to care. Highly educated adult persons with depression and/or anxiety in Sweden have however been found to be less likely to seek care [15]. Differences in care

seeking can also apply to gender and ethnic background, where boys in later adolescence and those with parents from ethnic minorities are less likely to seek care [304]. This would result in an underestimation of the risk. On the other hand some care in the private sector was not included in the current analyses, and if those with higher social position to a higher extent seek private care this would lead to an overestimation of the results. Most care in Stockholm is however public [305]. In study III only care-seeking individuals were included.

Study II and III has a design where routine procedures at CAMHS were used. It means that nothing was created for the purpose of these studies specifically. The diagnostic procedures at CAMHS are based on professional assessment and not on structured forms. These procedures are reliable and good, however the precision in the diagnostic procedure can be hard to assess and it is not sure comorbid psychiatric diagnoses and the CGAS-value have been assessed in a structured manner for all cases. CGAS have however been widely used [306] and has a moderate reliability (ICC=0.73) [307]. Some adolescents from CAMHS can further have been classified as having depression but in fact having bipolar disorder. This is due to the diagnostic code system used at CAMHS where a general code, code 19, include all depressive disorders, also bipolar disorder. However, bipolar disorder has a very low prevalence in young samples (around 0.1%) [308].

#### *6.6.1.2 Misclassification of social position*

Misclassification of social factors is possible though not likely to be large and also to be non-differential. One issue that can misclassify adolescents to a lower social position than the accurate is however related the procedures for registering housing in the Swedish registers used for study II and III. Only one social context is considered for adolescents with alternate living arrangements as registration in Sweden, is allowed at one address only. Among 6-12 year olds 73% live with both original (biological or adoptive) parents and this has been rather stable the last 10 years [217]. It is however likely that both parents have a similar social position. Furthermore, the second parent was excluded if he or she was not a biological/adoptive parent, since information for those was differential due to housing conditions, which in turn can be related to social position. This may lead to an underestimation of the associations.

An additional problem with those with alternate living is that they can have experienced a change in their social context, such as divorce/separation or parental death. Among Swedish 17 year olds approximately 30 percent have experienced divorce/separation and three percent have experienced parental death [217].

The measure of income benefit suffer from the same errors of family composition. Some information can also be lacking due to undeclared income.

The measure of parental country of origin has been discussed to possibly mask the parents' true ethnic identity. However the groupings of Sweden, Nordic and outside Nordic would not suffer as much from this. The groupings made in the studies of this thesis do nevertheless put

together large and possibly heterogeneous groups of people. An issue related to classification of occupation is that some report that it can be more difficult to distinguish between more typical female occupations than between more typically male occupations which can partly mask a social gradient among woman [309].

### **6.6.2 Confounding, mediation, modification and reversed causality**

Another limitation is the possibility of confounding and residual confounding. Parental depression can potentially confound the associations between social position and depression. Previous research have shown that children of parents with depression have a higher risk for depression [28]. Parents who suffer from mental health problems might drift down in their SES, which causally affects their children's mental health [37]. Parental depression may genetically, by for example influencing neurodevelopment, predispose children to depression and other mental health problems [68]. Further, a history of depression has been found to confound the relationship between SES and major depression among adults [310]. On the other hand, heredity has been found to only account for a part in the development of depression [68]. Further, the idea that parental mental health problems increase the risk of poor mental health among their children has been found by some [311], but not all [75], and, environmental factors can play a role even in disorders that are inherited [73]. It can further possibly be due to what Stein et al. wrote "*when disorders occur in the absence of social adversity and if they are of short duration, the risks to the child are generally low*" [69]. Parental depression can instead be a moderator because in postnatal depression among mothers it has been found that maternal level of education moderates the association between depression, and offspring depression [312]. Parental depression can impact on the children by conflicts between the parents and the child, and by parental conflict, which can lead to mental health problems [313, 314]. Additionally, Patterson et al. [315] imply that adversities in youth increase the risk of depression more than family history of parental mental disease do, and that the adversity is more related to SES. In study I there was no information about parental depression available thus it could not be accounted for. For study II and III information was available and collected from the National Patient Register and was taken into consideration if it occurred before the child turned 13. Adjustment for depression among biological parents was done because most children live with their biological parents and because parental depression could possibly impact on the child's living situation. It was found that parental depression does not explain the associations in study II and III and most likely it does not explain the excess risk linked to low SES in study I either.

In study I, crude ORs were calculated for each social factor and each of the two outcome variables. Thereafter, adjustments were done for gender, and then mutually for all social factors, to distil the effect of each of them. McLaughlin et al. [257] found that different measures of SES (parental education and income, relative deprivation and community level income inequality and subjective social status) are significantly intercorrelated among themselves but not so strongly that it is not possible to study the associations of each aspect of SES with adolescent mental disorders while controlling for the others.

In study II and III the crude HR were accompanied with adjustments for parental depression, country of birth, and education. The HR for parental education and depression was adjusted for parental country of birth. The HR for household income and parental receipt of unemployment benefit and depression was adjusted for parental education and parental country of origin. The reason for these adjustments is based on the idea that one should not adjust for mediating factors. It is for example in line with results from a Norwegian study where the effect of education on health and well-being was mediated by income [316].

No adjustments for childhood adversities and psychosocial factors e.g. childhood adversities such as divorce were made which hamper the possibility of a mechanistic understanding. In study I-III these factors were considered as mediators as they are within the causal pathway between social position and depression. This has been handled somewhat differently in different studies. As one example it can be mentioned that McLaughlin et al. [39] made adjustments for childhood adversities in their analyses of risk of mood disorders among adolescents due to financial hardship, which, took away the association. Another example is that school-performance has been found to mediate the relationship between parental SES and non-fatal suicidal behavior but not to moderate [135]. As previously mentioned, Aslund et al. [141] found further that experiences of shame may mediate part of the association between psychosocial risk factors and depression, such as the mediation of shaming experiences in the association between parental unemployment and depression in adolescence. Also locus of control in adolescence is a factor that has been considered to mediate the link between early adversity and depression in late adolescence [317].

Adjustment for gender was done in the analysis in article I but did not alter the results. It was subsequently not thought to be a confounder but more likely an effect modifier. This is in accordance with what has been found in another study where gender was not found to be a confounder in the relationship between SES and psychosocial health [32]. It was not possible to adjust for physical illness. Having a physical illness in childhood has been associated with almost tripled the risk of life-time depression however the association of SES and depression was not explained by this [250].

Reversed causality is not very likely however it was not possible to completely exclude adolescents with potential depressive symptoms or diagnosed depression before start of follow up for study I-III. It is most likely not a large problem because parents' social position is expected to precede the child's potential depression. Following this it was also shown that having had a diagnosis of depression (self-reported in 2010) before the exposure was measured only applied to two children (study I). In the material from CAHMS a previous report, including 13-17 year old adolescents from year 2007, a very low percentage had a depression diagnosis before the age of 13 [318].

An additional limitation was the unsatisfactory statistical power in study I. This limitation did not only render it difficult to refine analyses comparing the two different measurements of depressive symptoms, but also to more closely investigate subgroup differences, e.g. between

boys and girls. To some extent it was not possible to fully investigate subgroups differences in study III either. Furthermore there is the possibility of residual confounding.

### 6.6.3 Trustworthiness

*"A researcher's background and position will affect what they choose to investigate, the angle of investigation, the methods judged most adequate for this purpose, the findings considered most appropriate, and the framing and communication of conclusions"* [319] (p. 483-484).

As Malterud [319] further writes: *"Preconceptions are not the same as bias, unless the researcher fails to mention them"* (p. 484). As all knowledge attempts are socially situated [320] a researcher should state their background and position. The authors of study IV had an interest in the field and different kinds of experience of depression which probably affected how the study came about and was conducted. Authors were white, middle class women and men with a public health, medical or sociological background and hence possibly we tried to fit things into that kind of worldview. The different positions and perspectives applied by different researchers will result in different understandings of a situation, but, these different understandings can be equally valid [319]. One way of looking at this is that these differences provide a more comprehensive understanding, though it can also be thought of as a problem of reliability.

How to reach high trustworthiness has been debated, as has the terminology used to assess quality [321]. One example is that some regard the issue of member checking (returning to the participants following data analysis) as the optimal way to ensure that the researcher has analyzed the data correctly. However, others believe that one should not expect either researchers or respondents to arrive at the same themes and categories as the researcher.

Different kinds of triangulation can improve trustworthiness. The use of several different methods can help in gaining more in-depth knowledge [319]. Analytical triangulation was partly employed in study IV but that and other kinds of triangulation could have been further developed. In order to enhance trustworthiness, the interview guide was however checked by several researchers, pilot tested and the first interview was read through by a co-author to ensure quality. Moreover, because the interviewer did not have a medical background, a more open mind could be kept, not allowing for as much "taken for granted knowledge". Quotes from the transcribed interviews were used to enhance trustworthiness by illustrating the fit between data and analysis. The first and the last author engaged in the analysis which improved the possibility of not missing out on any results [247]. Furthermore, a detailed description of participants, setting and methods was done as well as an investigation of previous research, to frame findings. There were also debriefing sessions between the main author and superiors, peer scrutiny of the project and recognition of shortcomings in the study's methods.

Saturation [322] is not necessarily an element in interpretative content analysis but was even so judged to have occurred in the group of young, relatively well-educated men included in

study IV. The group was relatively homogenous which probably is one of the reasons as to why saturation was reached, but also that the interviews provided rich information. The number of men that were included can in general be considered reasonable for a qualitative study where sample variation is crucial – it should not be too big nor too small [242].

#### **6.6.4 Generalizability and transferability**

The quantitative material in this thesis comes from Stockholm County. Stockholm has in general more highly educated parents, families with higher income and more parents born outside Sweden, compared to the national average, but correspond well to the general population in metropolitan Sweden. There is however no reason to believe that these differences limit the possibility of generalizing the findings, since there is no indication of this affecting the association between social position and depression.

In the BROMS cohort, the proportions of children with foreign-born parents as well as households with more than one adult corresponded well to the national average (11% and 74%) [217]. Parents with college education were overrepresented in comparison with the regional average [230]. Also, males, those born outside Sweden, having psychosocial distress and those who had initiated smoking were less likely to participate at follow-up, but attrition was low (around 10%). In SYC, population characteristics and the distribution of care utilities are similar to other big cities of Sweden and thus it is possible to generalize to those, as well as to other populations within a similar context. The generalization possibilities can however be limited by the fact that SYC is based on register information where only diagnosed depression is included, thus results can only be generalizable to adolescents that have sought care for, and have depression severe enough to be diagnosed.

The participants in the interview study represent quite well the general population in metropolitan Sweden, with a slightly higher educational level compared to the national average [244]. The experiences of depression and help-seeking might vary in different contexts; hence transferability is most likely for young men in similar contexts. The interpretation of study IV is one of several possible understandings, as a text never produces one single meaning [247]. The men participating in the study can further be unusual in some aspects. Our sample was obtained from an available RCT because of practical and ethical reasons. We restricted participants to men living in metropolitan areas because we assumed available care facilities differ between rural and urban areas. We did probably not reach the “silent” men nor the men that felt their masculinity is threatened [323] or those who are less open with their stories. We did however manage to reach a rather young group of men which can be more difficult [323]. The findings are also in line with results from similar studies from a variety of settings [184].

## 7 FUTURE STUDIES AND IMPLICATIONS OF FINDINGS

Society changes, it is therefore important to continuously monitor social differences. As social differences can fluctuate over the lifespan and risk factors for depression can vary between children and adolescents, it would be interesting to look at social differences in childhood, as a complement to adolescence. Following the adolescents into adulthood to investigate if there is disadvantageous health or social factors that are modified by social position in childhood is another important issue. There is also need of studies that investigate care-seeking behavior related to depression, to find out more about potential differences between social groups. It can further guide the direction of future research, access to care and mental health promotion.

Social epidemiology acknowledges that health and disease not only are influenced by factors at the individual level but also at the group and community level. The social factors cannot determine exactly what individual in the society that will get a disease but can help explaining group differences. This thesis enhances previous knowledge about social and gender differences in depression among adolescents and young men. A low familial social position during childhood increases the risk of depression and prevailing gender norms impact on the illness-journey of depression and help-seeking behavior among young men. Why this is the case and what factors to target to reduce differences between groups is complex. One aspect that has been mentioned to tackle social differences in depression is to find out if some social groups manage better with depression [324] which warrant future studies. Research to further understand factors underlying the social differences in depression and in a more burdensome depression are needed. To use an intersectionality approach to escape some of the limitations with theorizations about one dimension only would further shed light on the complex associations and interactions between social position and depression.

Social differences in self-reported symptoms of depression and in a more burdensome depression were found to be relatively high. In relation to diagnosed depression they were smaller but even so, these differences should also be looked upon in absolute terms as depression affect many people. Thus more work is needed to reduce social differences. To highlight groups with psychiatric comorbidity is also important as they can have an even higher risk of negative consequences. Parents to adolescents with comorbid mental disorders need further attention as they have more strain than parents having children with one disorder only [325], especially those parents with lower social position. Support is thus given to interventions in line with proportionate universalism to tackle the social differences, i.e. by addressing those underprivileged within a population-wide strategy.

Depression impacts self-esteem and thereby possibilities for education, work and relationships. Ongoing changes in society towards increased gender equality and of the meaning of ideal masculinity could simplify the struggle with gendered norms in relation to depression. This is important as depression can delay development to adulthood. To address

young people from a gender perspective can reduce gender differences, overall, and in depression, in adulthood.

Perhaps there is a need to shift focus from specific diseases to become better able to prevent disease that arise from the social structure [326]. This stems from the notion that we already know a lot about individual risk factors but that they account only for a small part of the of the diseases that occur. Helping people to lower those risks work only modestly, and also, new people will continue to enter the at-risk population because the social forces in the society that cause the problem in the first place are rarely the target. This is further emphasized in an article by Sonogo et al. [33] where they state that *“if poorly educated parents tend to have poorly educated children, the consequences of low education on child health will be passed from one generation to the next, with little chance of ever breaking this vicious circle”*.

The present overall goal of the Swedish public health policy is to “create societal conditions for good health on equal terms for the entire population and closing the preventable health gap in a generation” [227]. The Swedish government has also launched a major initiative related to mental health [327]. Focus is set on prevention and promotion efforts, early efforts, vulnerable groups, participation and rights, organization and leadership with a particular focus on children and young people. A central part of the government's strategy is about equal care throughout the country. The results from this thesis support that those strategies are needed.

## 8 CONCLUSIONS

A low social position in childhood may increase the risk of depression in adolescence, and ideal masculinity can interfere with the understanding and acceptance of depression as well as with the willingness to seek help for young men. This was found in Sweden, a country with relatively small social differences, a highly developed welfare system and with adolescents and young adults living in relatively equal gender contexts of metropolitan areas.

Social differences in self-reported depressive symptoms were rather high but less so in diagnosed depression. Gender differences in risk of diagnosed depression based on social position were small but girls with low educated parents or living exclusively with one adult may be particularly vulnerable. A low social position of the family can also increase the risk of a more burdensome depression among adolescents with depression. Depressed girls with parents with lower education had an increased risk of low psychosocial function. Both boys and girls with a lower social position of the family had an increased risk of a more burdensome depression but partly in different groups of psychiatric comorbidity. We highlight the importance to acknowledge these social differences in depression, in health care-services and among policy makers.



We further highlight the importance of gender awareness among professionals as well as among those affected by depression, especially as young men's process of accepting and seeking help for depression was found to be delayed because of prevailing gender ideals. Continued efforts are needed to reduce social and gender differences in depression, particularly considering the fact that a great number of people are affected. Explanations to these social differences, and to social differences in care-seeking related to depression, need further attention.

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# APPENDIX 1. INVENTORY FOR DEPRESSIVE SYMPTOMS

Translated from Swedish to English

The inventory has 12 questions to be answered with Never, Sometimes, Often or Very often

1. Has felt grumpy/moody the last month (30 days)
2. Has had difficulties falling asleep or sleeping the last month (30 days)
3. Has felt unhappy or sad the last month (30 days)
4. Has had no strength to do anything the last month (30 days)
5. Has not liked him-/herself the last month (30 days)
6. Has felt tired and taken no pleasure in doing anything the last month (30 days)
7. Has felt that he/she cannot perform as well as others the last month (30 days)
8. Has felt that nothing has gone well for him/her the last month (30 days)
9. Has been eating unusually much the last month (30 days)
10. Has been sleeping unusually much the last month (30 days)
11. Has had difficulties concentrating the last month (30 days)
12. Has skipped meals and been a poor eater the last month (30 days)

## APPENDIX 2. INTERVIEW GUIDE

Original version (Swedish)

1. **Skulle du vilja börja med att berätta lite om dig själv?**
  2. **Kan du berätta om hur ditt liv ser ut idag?**
    - Vilka bekymmer är det som du haft (problem/symptom). Hur upplevde du dessa?
  3. **Om du jämför med innan du hade de här bekymren, hur tycker du att livet förändrades eller påverkades av att du mådde/mår dåligt?**
  4. **Vad tror du är anledningen till att du mått dåligt psykiskt?**
    - Ekonomi? Arbete? Boende? Livshändelse? Uppväxt? Stöd?
  5. **Hur tänker du om det här att vara man och manlig?**
    - Har du funderat kring manlighet och nedstämdhet och hur har du tänkt då?
  6. **Med tanke på bekymren du haft, hur kan det ha inverkat på olika sociala situationer – som relationen till din familj och vänner? Kunde du uttrycka det för din omgivning, förstod någon i din omgivning (vem?)**
  7. **Hur har du hanterat dina symptom?**
  8. **Vad tänkte du att du behövde för hjälp?**
    - Hur gick det till när du sökte hjälp/vård?
    - Hur kom det sig att du sökte hjälp?
    - Vilken var din första kontakt?
    - Hur upplever du att det fungerat för dig?
  9. **Finns det något ytterligare du skulle vilja ta upp?**
    - Finns det något du vill nå ut med?
- Hur upplevde du intervjun? Hur känner du nu?**

Translated version (English)

1. **Please start by telling me about yourself?**
  2. **Please tell me what your life is like today?**
    - I wonder what problems / symptoms did you have? How did you experience these?
  3. **If you compare with before you had these concerns, how do you think life changed or was affected by the fact that you feel/ felt bad?**
  4. **What do you think is the reason you felt bad?**
    - Economy? Work situation or studies? Accommodation? Life event? Upbringin? Support?
  5. **What are your thoughts about being a man, and being manly**
    - Have you thought about depression and manhood, how?
  6. **In view of the concern you had, how has it impacted on different social situations - like the relationship with your family and friends?**
    - Could you express how you felt, did someone understand your situation? (who)
  7. **How have you handled your symptoms?**
  8. **What kind of help did you think you needed?**
    - How did you do when you searched for help / care?
    - How come you searched for help?
    - What was your first contact?
    - How do you feel it worked for you?
  9. **Is there anything else you would like to add?**
    - Is there anything you want to reach out with?
- How do you feel about the interview? How do you feel now?**



# APPENDIX 3. CHILDREN'S GLOBAL ASSESSMENT SCALE – C-GAS

## CHILDREN'S GLOBAL ASSESSMENT SCALE – C-GAS

För barn och ungdomar i åldrarna 4-20 år.

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Svensk översättning 2001-04-06 M Halgerson, fil lic leg psykolog och P Gustafsson, MD PhD Barn- och ungdomspsykiatriska kliniken, Linköping

Svensk nyöversättning och bearbetning 2005-08-14, i samarbete med Shaffer D, Gould MS, Fisher P, Bird H Columbia University, New York.  
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Skatta personens mest nedsatta generella funktionsnivå under den specificerade tidsperioden genom att välja den lägsta nivå som beskriver hans/hennes fungerande på ett hypotetiskt kontinuum av hälsa/sjukdom. Använd även de intermediära nivåerna (t.ex. 35, 58, 62).

Skatta aktuell funktionsförmåga utan hänsyn till behandling eller prognos. De tillhandahållna exemplen på beteenden är enbart illustrativa och erfordras inte för en speciell skattning.

*Specifiserad tidsperiod: 1 månad*

|        |   |       |  |
|--------|---|-------|--|
| 100-91 | Synnerligen god funktionsförmåga inom alla områden (hemma, i skolan och med kamrater), involverad i flera olika aktiviteter och har många intressen (t.ex. har hobbies eller deltar i aktiviteter utanför skolan eller tillhör en organiserad grupp såsom scout, etc.). Sympatisk, gott självförtroende, vardagliga bekymmer blir aldrig ohanterliga. Klarar sig bra i skolan. Inga symtom.   | 50-41 | Måttlig störning av funktionsförmågan inom de flesta sociala områden eller allvarlig störning av funktionsförmågan inom ett område, vilket kan orsakas av t.ex. suicidalt upptagenhet eller suicidala grubblarier, skolvägran och andra former av ångest, tvångsmässiga ritualer, allvarliga konversionssymtom, täta ångestattacker, ofta förekommande aggressivt eller annat antisocialt beteende med visst bibehållande av meningsfulla sociala relationer.                                  |
| 90-81  | God funktionsförmåga inom alla områden. Trygg i familjen, skolan och med kamrater. Det kan förekomma tillfälliga svårigheter och vardagsbekymmer som ibland blir ohanterliga (t.ex. oro i anslutning till ett viktigt prov, sporadiska vredesutbrott mot syskon, föräldrar eller kamrater).   | 40-31 | Betydande nedsättning av funktionsförmågan inom flera områden och oförmögen att fungera inom ett av dessa områden, dvs. störd hemma, i skolan, med kamrater eller i samhället i stort (t.ex. ihållande aggression utan uppenbar anledning, påtagligt tillbakadraget och isolerat beteende beroende på antingen stämnings- eller tankestörning, suicidförsök med tydlig dödlig avsikt). Dessa barn behöver sannolikt särskild skolgång och/eller intensifierad öppenvård/inläggning på sjukhus. |
| 80-71  | Endast lindriga funktionssvårigheter hemma, i skolan eller bland kamrater. Viss beteendestörning eller vissa känslomässiga problem kan förekomma som reaktion på stressframkallande livshändelser (t.ex. föräldrars separation, dödsfall eller ett syskons födelse), men dessa är kortvariga och funktionsförmågan övergår. Dessa barn är ytterst lite störande för andra och anses inte avvika av personer som känner dem.   | 30-21 | Oförmögen att fungera inom nästan alla områden, t.ex. stannar hemma eller i säng hela dagen utan att delta i sociala aktiviteter eller allvarlig störning av realitetsprövning eller allvarlig kommunikationsstörning (t.ex. ibland osammanhängande eller inadekvat).  |
| 70-61  | En del svårigheter inom ett enskilt område, men fungerar allmänt sett ganska väl (t.ex. sporadiska eller isolerade antisociala handlingar som tillfälligt skolk eller snatteri, genomgående smärre svårigheter med skolarbete, kortvariga växlingar i stämningsläge; rädslor och ångslan som inte leder till undvikande beteende; tvivel på sig själv). Har meningsfulla relationer. De flesta personer som inte känner barnet väl skulle betrakta honom/henne som normal, men de som känner honom/henne väl skulle kunna uttrycka oro. | 20-11 | Kräver anseelig tillsyn och övervakning för att förhindras att skada andra eller sig själv, t.ex. ofta våldsam, upprepade suicidförsök eller för att sköta personlig hygien eller grav störning av all kommunikation, t.ex. allvarlig avvikelser i verbal kommunikation och kroppsspråk, markant socialt otillgänglig, stupor, etc.  |
| 60-51  | Varierande funktionsförmåga med sporadiska svårigheter eller symtom inom flera, men inte alla, sociala områden. Störningen skulle vara uppenbar för dem som träffar barnet i ett dysfunktionellt sammanhang eller vid en dysfunktionell tidpunkt, men inte för dem som ser barnet i andra sammanhang.   | 10-1  | Kräver ständig tillsyn och övervakning (24-tim vård) på grund av allvarligt aggressivt eller självdestruktivt beteende eller grav störning av realitetsprövning, kommunikation, kognition, affekt eller personlig hygien.  |

# CHILDREN'S GLOBAL ASSESSMENT SCALE

For children 4–16 years of age

David Shaffer, M.D., Madelyn S. Gould, Ph.D.

Hector Bird, M.D., Prudence Fisher, B.A.

## Adaptation of the Adult Global Assessment Scale

(Robert L. Spitzer, M.D., Miriam Gibson, M.S.W., Jean Endicott, Ph.D.)

Rate the subject's most impaired level of general functioning for the specified time period by selecting the *lowest* level which describes his/her functioning on a hypothetical continuum of health-illness. Use intermediary levels (e.g., 35, 58, 62).

Rate actual functioning regardless of treatment or prognosis. The examples of behavior provided are only illustrative and are not required for a particular rating.

### *Specified time period: 1 month*

- 100–91 Superior functioning** in all areas (at home, at school, and with peers), involved in a range of activities and has many interests (e.g., has hobbies or participates in extracurricular activities or belongs to an organized group such as Scouts, etc.). Likeable, confident, "everyday" worries never get out of hand. Doing well in school. No symptoms.
- 90–81 Good functioning in all areas.** Secure in family, school, and with peers. There may be transient difficulties and "everyday" worries that occasionally get out of hand (e.g., mild anxiety associated with an important exam, occasional "blow-ups" with siblings, parents, or peers).
- 80–71 No more than slight impairment in functioning** at home, at school, or with peers. Some disturbance of behavior or emotional distress may be present in response to life stresses (e.g., parental separations, deaths, birth of a sib) but these are brief and interference with functioning is transient. Such children are only minimally disturbing to others and are not considered deviant by those who know them.
- 70–61 Some difficulty in a single area, but generally functioning pretty well,** (e.g., sporadic or isolated antisocial acts, such as occasionally playing hooky or petty theft; consistent minor difficulties with school work, mood changes of brief duration; fears and anxieties which do not lead to gross avoidance behavior; self-doubts). Has some meaningful interpersonal relationships. Most people who do not know the child well would not consider him/her deviant but those who do know him/her well might express concern.
- 60–51 Variable functioning with sporadic difficulties or symptoms in several but not all social areas.** Disturbance would be apparent to those who encounter the child in a dysfunctional setting or time but not to those who see the child in other settings.
- 50–41 Moderate degree of interference in functioning in most social areas or severe impairment of functioning in one area,** such as might result from, for example, suicidal preoccupations and ruminations, school refusal and other forms of anxiety, obsessive rituals, major conversion symptoms, frequent anxiety attacks, frequent episodes of aggressive or other antisocial behavior with some preservation of meaningful social relationships.
- 40–31 Major impairment in functioning in several areas and unable to function in one of these areas,** i.e. disturbed at home, at school, with peers, or in the society at large, e.g., persistent aggression without clear instigation; markedly withdrawn and isolated behavior due to either mood or thought disturbance, suicidal attempts with clear lethal intent. Such children are likely to require special schooling and/or hospitalization or withdrawal from school (but this is not sufficient criterion for inclusion in this category).
- 30–21 Unable to function in almost all areas,** e.g., stays at home, in ward or in bed all day without taking part in social activities OR severe impairment in reality testing OR serious impairment in communication (e.g., sometimes incoherent or inappropriate).
- 20–11 Needs considerable supervision** to prevent hurting others or self, e.g. frequently violent, repeated suicide attempts OR to maintain personal hygiene OR gross impairment in all forms of communication, e.g. severe abnormalities in verbal and gestural communication, marked social aloofness, stupor, etc.
- 10–1 Needs constant supervision** (24-hour care) due to severely aggressive or self-destructive behavior or gross impairment in reality testing, communication, cognition, affect, or personal hygiene.

## APPENDIX 4. CATEGORIZATION AND DEFINITION OF CONCURRENT DISORDERS

1. **Internalizing disorders:** DSM-IV: 300.00-02, 300.21-22, 300.3, 309.81, 308.3.  
Diagnostic code from CAMHS: 13, 14, 15, ICD-10: F40–48.
2. **Externalizing disorders:** DSM IV: 303.90, 305.00, 303.00, 291.81, 291.0, 291.2, 291.1, 291.5, 291.3, 291.9, 291.89, 304.40, 304.70, 292.89, 292.0, 292.81, 292.11, 292.12, 292.84, 292.9, 304.30, 305.20, 292.12, 304.90, 305.90, 292.81, 292.89, 292.9, 304.50, 305.30, 305.90, 304.20, 305.60, 304.60, 292.82, 305.10, 304.00, 305.1, 305.50, 304.10, 305.40, 292.83, 304.80, 312.81, 312.82, 312.89, 313.81, 312.9.  
Diagnostic code: 17, 7, 8. ICD 10: F10-F19, F55, F91.0, F91.2, F91.3, F92.0, F92.8, F92.9, F91.1, F91.8, F91.9.
3. **Developmental disorders:** DSM-IV: 317, 318.0, 318.1, 318.2, 319, 315.00, 315.1, 315.2, 315.9, 315.4, 315.31, 315.32, 315.39, 307.0, 307.9, 299.00, 299.80, 299.10, 314.00, 314.01, 314.9, 307.20, 307.21, 307.22, 307.23. Diagnostic code: 1-6, 10, 16, 25. ICD-10: F70.0-9, F71.0-9, F72.0-9, F73.0-9, F74.0-9, F75.0-9, F76.0-9, F77.0-9, F78.0-9, F79.0-9, F79.9A, B, X, F81.0, F81.2, F81.8, F81.9, F82, F80.1-9, F83.9, F84.0, F84.1, F84.2, F84.3, F84.4, F84.5, F84.8, F84.9, F88.9, F89.9, F90.0, F98.9, F95.0, F95.1, F95.2, F95.8, F95.9, F93.0, F93.1, F93.2, F93.3, F93.8, F93.9, F90.0A, F90.0B, F90.0C, F90.1, F90.8, F90.9.
4. **Other disorders:** DSM-IV: 787.6, 787.7, 307.52, 307.53, 307.59, 307.6, 296.00-296.06, 296.50-296.56, 296.40-296.46, 296.60-296.66, 296.7, 296.90, 296.80, 296.89, 301.13, 295.10-90, 297.1, 297.3, 298.8-9, 290.10-11, 290.3, 290.40-43, 294.0-9, 293.0, 780.09, 293.81-89, 310.1, 293.9, 293.9, 310.1, 293.9, 300.81-82, 300.11, 307.80-90, 300.7, 300.16, 300.19, 300.12-15, 300.6, 302.70-79, 306.51, 625.8, 607.84, 625.0, 608.89, 302.4, 302.2-9, 302.81-89, 302.82, 307.42, 307.44, 347, 780.59, 307.45, 307.47, 307.46, 780.52, 780.54, 780.59, 312.30-34, 312.39, 309.0, 309.24, 309.28, 309.3, 309.4, 309.9, 301.0, 301.20, 301.7, 301.83, 301.50, 301.4, 301.82, 301.6, 301.89, 301.9. Diagnostic code from CAMHS: 9, 11, 12, 18, 20-24, 27. ICD-10: F98.0-1, F30-F31.9, F34.0, X60-X84, F20-F29, F00-F09, F68.1, F50.0-F50.9, F52-F52.9, F51.0-9, F60-F69, F53.0,1,8,9, F54, F59, F98.3, F98.2, F99.